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TRC Reference No. 196378

September 17, 2014

Kimberly N. Tisa, PCB Coordinator
United States Environmental Protection Agency
5 Post Office Square, Suite 100
Mail Code: OSRR07-2
Boston, Massachusetts 02109-3912

Re: **TSCA Risk-Based Work Plan - Former Kiley Barrel Site**
Somerville, Massachusetts

Dear Ms. Tisa:

On behalf of the Somerville Redevelopment Authority (SRA) and the City of Somerville, TRC Environmental Corporation (TRC) is submitting for your review and approval this revised, per your comments and our discussions, TSCA Risk-Based Work Plan pursuant to 40 CFR 761.61(c) to address polychlorinated biphenyls (PCBs) in soil at the Former Kiley Barrel Site, located in Somerville, Massachusetts. This Work Plan describes the sampling, cleanup, and disposal of PCB Remediation Waste at the Site. Procedures and regulations cited in this report are consistent with those included in 40 CFR 761 and presented by Environmental Protection Agency (EPA) Region 1.

If there are any questions, please contact the undersigned at (978) 656-3518 or via email at sbuchanan@trcsolutions.com.

Sincerely,

TRC Environmental Corporation

N. Scott Buchanan
Project Manager

Cc
Joanne Fagan, MassDEP
Andrew Clark, MassDEP
Alan Petersen, EPA
Amanda Maher, City of Somerville

TSCA RISK-BASED WORK PLAN

Former Kiley Barrel Site
Somerville, Massachusetts

Prepared for:

City of Somerville
93 Highland Avenue
Somerville, Massachusetts 02143

Prepared by:

TRC Environmental Corporation
Wannalancit Mills
650 Suffolk Street
Lowell, Massachusetts 01854

September 2014 Revision 1

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1.0 EXECUTIVE SUMMARY

This Toxic Substances Control Act (TSCA) Risk-Based Work Plan (Work Plan) is being provided to U. S. Environmental Protection Agency (EPA) Region 1 to document the site investigations regarding polychlorinated biphenyls (PCBs) in soil for the Former Kiley Barrel Site in Somerville, Massachusetts (Site); describe the soil remediation and disposal plans; and solicit approval from the EPA for the proposed risk-based remedy under 40 CFR 761.61(c).

Background. The Former Kiley Barrel Site is a former barrel washing location with PCBs, metals, polycyclic aromatic hydrocarbons (PAHs), volatile organic compounds (VOCs), and extractable petroleum hydrocarbons (EPH) in soil. The groundwater is impacted by VOCs. The Somerville Redevelopment Authority and the City of Somerville plan to remove PCB Remediation Waste from the Site following TSCA requirements detailed in 40 CFR 761 and achieve a Permanent Solution closure pursuant to the Massachusetts Department of Environmental Protection's (MassDEP's) Massachusetts Contingency Plan (MCP) at 310 CMR 40.0000. The future plan for the Site is for a mixed commercial and residential development associated with the extension of the Boston subway system and the redevelopment of Union Square.

PCB Investigation Summary. A 15-foot sampling grid was used to investigate the presence of PCBs in soil at the Site. From the results of sampling the grid at multiple depths, five areas were identified where the total PCB concentrations were equal to or greater than 50 milligrams per kilogram (mg/kg). These areas range in depth from 1.3 feet below ground surface to 7.3 feet below ground surface. The estimated quantity of PCB Remediation Waste is approximately 3,830 tons. Note that the total project quantity of soil proposed for off-site disposal is 6,000 tons.

Remedy Overview. This Work Plan details the planned PCB removal action at the Site. Generally, the plan is to first remove soil from the five areas impacted with PCBs at concentrations equal to or greater than 50 mg/kg total PCBs and then remove the top three feet of soil across the site. An additional area of soil will also be removed to assist with remediation of VOCs in the soil and groundwater. Soil will be disposed off-site at appropriately licensed landfills.

Once soil has been removed, the excavations backfilled, and finish surface treatments installed, an Activity Use Limitation (AUL) will be recorded on the property deeds as an institutional control for potential future excavation into the remaining impacted soil located below three feet on the Site. Closure reports will document soil disposal, verification sampling, an associated risk assessment for soil, and the AUL restrictions. Once groundwater remediation is documented as complete, a Permanent Solution with conditions will be filed for the entire Site with MassDEP.

2.0 INTRODUCTION

On behalf of the Somerville Redevelopment Authority (SRA) and the City of Somerville (collectively referred to as the "City"), TRC Environmental Corporation (TRC) prepared this TSCA Risk-Based Work Plan for the Former Kiley Barrel Site located southeast of the intersection of Prospect Street and Somerville Avenue in Somerville, Massachusetts. A Site Location Map is presented in Figure 1, and a Site Plan is presented as Figure 2. This Work Plan describes the sampling, cleanup, and disposal of PCB Remediation Waste located at the Site and solicits EPA's approval of the proposed risk-based remedy under 40 CFR 761.61(c).

The Site owner contact information is provided below. The City of Somerville owns the 0 Prospect Street parcel. The following lots are owned by the SRA: 20-22 Prospect Street, 264-266 Somerville Avenue, 9 and 10 Milk Place, 8, 14 and 16-20 Bennett Street, and portions of Bennett Street. The City of Somerville and SRA will retain property ownership through the implementation of the remediation.

Site Owners:

Somerville Redevelopment Authority
Somerville City Hall
93 Highland Avenue
Contact: Ms. Amanda Maher, Economic Development Specialist
Somerville, Massachusetts 02143
617-625-6600, x2528

City of Somerville
Somerville City Hall
93 Highland Avenue
Contact: Ms. Amanda Maher, Economic Development Specialist
Somerville, Massachusetts 02143
617-625-6600, x2528

This Site is a Disposal Site under the MCP (310 CMR 40.0000) with Release Tracking Number (RTN) 3-2849. The Site investigation results and remediation plans are presented in a number of MCP documents that have been submitted to MassDEP and are available on-line at MassDEP's web site at http://public.dep.state.ma.us/SearchableSites2/Search.aspx. The two most relevant documents are as follows:

- Supplemental Phase II Comprehensive Site Assessment (CSA), Phase III Remedial Action Plan (RAP), and Tier Reclassification, Kiley Barrel Site, prepared for the City of Somerville by TRC Environmental Corporation, April 2012; and
- Modified Phase IV Remedy Implementation Plan (RIP), Former Kiley Barrel Site, prepared for the City of Somerville by TRC Environmental Corporation, October 2012.

Overall, the remediation of the Site is being conducted per the MCP and TSCA (40 CFR 761) requirements.

This TSCA Risk-Based Work Plan includes information contained in the above reports as well as updated information and analytical results.

3.0 SITE INFORMATION

3.1 Site Location and Description

A Site Location Map identifying the general Site vicinity is provided as Figure 1. Figure 2 depicts the overall Site boundary. The Disposal Site encompasses eight contiguous parcels of land consisting of 0 Prospect Street, 20-22 Prospect Street, 264-266 Somerville Avenue, 9 and 10 Milk Place, 8, 14 and 16-20 Bennett Street, as well as a portion of Bennett Street and Bennett Court (herein called Bennett Street), in addition to parcels defined by groundwater and potential indoor air impacts at the down-gradient residences located at 250-256 Somerville Avenue, and 5-7, 9, and 11 Allen Street located in the City of Somerville, Middlesex County, Massachusetts. The Site is approximately 55,200 square feet (1.27 acres) in size and is located southeast of the intersection of Prospect Street and Somerville Avenue, just east of Union Square in Somerville, Massachusetts. The Site abuts Prospect Street, Milk Place, Somerville Avenue, and Allen Street, and includes a portion of Bennett Street. A paved municipal parking lot currently occupies 0 Prospect Street. The eight contiguous parcels and Bennett Street total approximately 35,298 square feet (0.81-acres) in size and are vacant, mostly unpaved and covered with crushed stone, with remnants of at least two former building footprints.

With the exception of the down-gradient residences, Bennett Street, and the 0 Prospect Street property (which is currently used as a paved public parking lot), the Site is surrounded by a six-foot high chain-link fence. Bennett Street is partially paved and partially covered with gravel/crushed stone. The ground surface of the fenced-in portion of the Site is covered by approximately two inches of crushed stone. Locked gates provide access for authorized personnel at multiple locations from Somerville Avenue, Milk Place, Prospect Street, and Bennett Street.

The Site is vacant and no utilities currently service the fenced portion of the Site. Surrounding properties are serviced by the municipal drinking water system and a publicly owned wastewater treatment facility. The City of Somerville is not aware of any private drinking water wells located within 500 feet of the Site. Based on the 2010 census data for the City of Somerville, the population density in the vicinity of the Site is approximately 17,958 persons per square mile. Based on these data, the population within ½-mile of the Site is estimated to be 14,104 people.

No certified vernal pools, public or private water supply wells, potentially productive aquifers, surface water supplies, protected open space, or institutions are known to be located within 500 feet of the Site. The Site is not located within a 100-year floodplain as determined by the Federal Emergency Management Agency (FEMA).

4.0 BACKGROUND

4.1 Site History

The Site is the location of the Former Kiley Barrel facility. The Site is in an area that formerly included the Miller's River. Backfilling of the Miller's River drainage basin (including the Site area) began sometime after 1852, and was complete by 1888. Research suggests that barrel washing operations began at the Kiley Barrel facility in the early 1920s, and up to 300,000 barrels were stored at the facility at one time. Cleaning and refinishing of barrels reportedly occurred on what is currently the 14 Bennett Street parcel. Barrel storage and resale activities occurred on 20-22 Prospect Street, 9 and 10 Milk Place, 8 and 16-20 Bennett Street, and portions of Bennett Street. Cleaning and refinishing of the barrels on-site stopped in 1984 when the location became a distribution center. Kiley Barrel operated until 1989 when the former Site owner, Mr. James Kiley, passed away and ownership of the property was transferred to Massachusetts General Hospital and the Animal Rescue League. Somerville Avenue, LLC purchased the property in 1999. The Somerville Redevelopment Authority subsequently obtained the Site parcels, with the exception of 0 Prospect Street, in 2002. The City of Somerville owns 0 Prospect Street.

The disposal site history is described in the Phase II CSA completed by Environmental Compliance Services, Inc. dated April 2006 (ECS, 2006), the Supplemental Phase II CSA and Phase III Remedial Action Plan by TRC dated May 2010 (TRC, 2010), Supplemental Phase II CSA and Phase III RAP by TRC dated April 2012 (TRC, 2012a), and Phase IV Remedy Implementation Plan Modification by TRC dated October 2012 (TRC, 2012b). Much of the historical soil characterization data presented in these reports is based upon the ground surface elevation being the bottom of the stone that covers much of the Site. To simplify soil management, all depths discussed in this Work Plan are the depth below current grade (including the stone).

Soil on the eight contiguous properties and groundwater on and down-gradient of these properties are impacted above applicable cleanup standards with a range of chemicals resulting from their presence in fill material and due to historical operations. Soil impacts are associated with PCBs, metals, PAHs, VOCs, and EPH. Groundwater is impacted by VOCs (e.g., chlorobenzene, 1,2-dichloroethane, cis-1,2-dichloroethylene and vinyl chloride).

4.2 Nature and Extent of PCBs

4.2.1 Soil Impacts

To supplement the initial rounds of PCB soil sampling, a 15-foot sampling grid was established across the Site to delineate PCB impacts in soil. The use of a 15-foot grid was coordinated with EPA Region 1 PCB Coordinator, Kimberly Tisa. PCB soil data are presented in Table 1 and illustrated on Figure 3. The horizontal and vertical extent of PCB-impacts in soil at the Site have been adequately characterized. PCBs have been detected at concentrations that exceed the 2014 MCP Method 1 residential (S-1/GW-1 and S-1/GW-3) standard of 1 mg/kg in soil at depths located primarily in the top 3 feet of soil across large portions of the following parcels: 20-22 Prospect Street, 9 Milk Place, 10 Milk Place, 8 Bennett Street, 16-20 Bennett Street, 14 Bennett Street, and

within Bennett Street. PCB concentrations are typically higher in shallower soil. PCBs have not been detected above applicable standards at 0 Prospect Street or 264-266 Somerville Avenue.

PCBs have also been detected at several deeper locations. In boring I10, PCBs were detected above MCP standards at a depth of up to 5 feet below ground surface. At 20-22 Prospect Street, PCBs have been detected in multiple sample locations as deep as 7 feet below ground surface, and at 14 Bennett Street, PCBs have been detected in multiple sample locations as deep as 16 feet below ground surface at concentrations above MCP standards.

Off-site soil sampling conducted under RTN 3-28512 on the adjacent properties at 4 Milk Place, 250 Somerville Avenue and 7, 9, 11, and 13 Allen Street has demonstrated that PCBs above standards do not extend in off-site soil to the east of the Site. Samples collected at 0 Prospect Street and 264-266 Somerville Avenue (including ECS-B7, CS-2, CS-3 and B09) indicate that PCB impacts are defined to the north and do not extend off-site in that direction. Samples P08, P09, and P10, collected at the southern boundary of the Site, also indicate that PCBs do not extend to the south of the 16-20 Bennett Street parcel. Non-detectable to low PCB concentrations along Prospect Street and Bennett Street indicate that the Disposal Site does not extend off-property in these areas.

In 2013, EPA completed a removal action of the top three feet of soil in the back yards at 7, 9, and 11 Allen Street properties (Weston, 2014). The yards were subsequently backfilled with clean soil and reseeded.

Additional PCB delineation in soil was conducted in and west of the portion of Bennett Street in the vicinity of 16-20 Bennett Street as part of MCP Immediate Response Action assessment activities associated with a condition that could pose an Imminent Hazard per Section 40.0321of the MCP at the adjacent 15 Bennett Street parcel (RTN 3-30510; i.e. not part of the Former Kiley Barrel Site). Data indicated that several locations including Bennett-S-2, Bennett-S-3, H06, I06, I06-R, and I07 exceeded the MCP S-1 residential standard for PCBs at depths of 0-0.5 feet and 0-1 feet.

Initially, total PCB concentrations above 50 mg/kg were detected at three locations (ECS-B2, CMW-9, and 20PROSPECT-S-5). Subsequent 15-foot grid soil sampling conducted as part of the March 2010 and September 2011 Site investigations determined PCBs have been detected at equal to or greater than 50 mg/kg in five areas of the Site, as summarized below:

- *AREA-A1* - The western side of the 10 Milk Place parcel in soil sample ECS-B2 (0-2 feet);
- *AREA-A2* - The western side of the 14 Bennett Street parcel in soil sample CMW-9 (0-2 feet);
- *AREA -A3* - The central portion of the 20-22 Prospect Street parcel in soil sample C04 (1-2 feet);
- *AREA -A4* - The southeastern portion of the 20-22 Prospect Street parcel in multiple sample locations centralized around 20PROSPECT-S-5 (0-0.5 feet); and
- *AREA -A5* - The center of the 16-20 Bennett Street parcel, in soil sample L09 (0-0.5 feet).

Additional ten-foot soil sampling grids were conducted at Areas A1 and A2 in March of 2010. Soil samples ECS-B2 (0-2 feet) and CMW-9 (0-2 feet) were the only samples with PCBs detected at a concentration equal to or greater than 50 mg/kg, in Areas A1 and A2, respectively. The results of the September 2011 sampling of the 15-foot grid showed that 11 soil samples in TSCA A3 [C04 (1-2 feet); 20PROSPECT-S-5 (0-0.5 feet); 20PRO-S-5-3 (2-3 feet); 20PRO-S-5-4 (1-2 feet); 20PRO-S-5-5 (0-0.5 feet); 20PRO-S-5-6 (0-0.5 feet) and (1-2 feet); 20PRO-S-5-8 (0-0.5 feet); 20PRO-S-5-9 (0-0.5 feet), (1-2 feet) and (5-7 feet)] had concentrations equal to or greater than 50 mg/kg total PCBs.

The presence of PCBs equal to or greater than 50 mg/kg necessitated a determination of TSCA jurisdiction. As discussed in the September 6, 2011 Soil Sampling Plan (TRC, 2011a), 0 Prospect Street and 264-266 Somerville Avenue were eliminated from TSCA oversight because PCBs were not found to be detected above applicable standards on these parcels and historical usage was not related to the former Kiley Barrel washing operations. For the other parcels, the following lines of evidence were used to define the TSCA jurisdiction at the Site:

- **Is the concentration of total PCBs > 50 mg/kg?** – Yes, there are isolated areas of PCB concentrations in soil that are greater than 50 mg/kg. These TSCA Areas are described in Section 6.2.4. Outside of these areas, PCB concentrations are mostly found in shallow soil (less than three feet below grade) and will be removed with other impacted soil as a part of the removal of the top three feet of soil from the Site. Section 5.2 discusses the PCB impacted soil to be left at the Site after these proposed remediation activities.
- **Is the disposal pre-1978? –** The specific source and timing of the presence of PCBs is not known. The PCB soil impacts likely have occurred from barrel storage and/or washing operations from the 1920s through 1984 by the Kiley Barrel Facility. Thus, it is possible that PCBs were disposed after 1978.
- **Has the contamination been disturbed?** – Some Site surficial soils were graded and placed in a pile at the Site in 2006. These disturbed soils were characterized and disposed of under an MCP Release Abatement Measure that was closed out in December, 2008 (TRC, 2008b). Details of the grading are not know and it is possible that contamination was disturbed. However, subsequent soil sampling has adequately characterized the presence of PCBs in the surface soils.
- **Is the source of the PCBs from an unauthorized use? –** There is no evidence that the PCB contamination is from the unauthorized use of PCB containing materials. It is likely that the impacts were from barrel cleaning activities.

Based on the above analysis, TSCA's jurisdiction for the Former Kiley Barrel Site, excluding 0 Prospect Street and 264-266 Somerville Avenue parcels, includes soil with PCB concentrations greater than 1 mg/kg.

4.2.2 Groundwater Impacts

The most significant Site groundwater impacts are in a perched aquifer in the vicinity of the floor drain in the Former Kiley Barrel washing building, with migration to the northeast and east.

Groundwater at the Site has been analyzed for PCBs during two rounds of low-flow sampling, March, 2009 and October, 2011. Of the 24 groundwater samples analyzed for PCBs, only one detection, at a concentration of 0.58 micrograms per liter (µg/L), was observed. This sample was the duplicate sample from well GZ-4; all other groundwater samples, including the GZ-4 sample, were non-detect below the laboratory reporting limit of 0.20 µg/L. This data is displayed in Table 3. Since the detection in the duplicate sample from GZ-4 is the only PCB detection to-date, and monitoring well GZ-4 is surrounded by numerous other wells (CMW-9, ECS-1, GZ-1, GZ-2, GZ-3 and TRC-8) with PCBs not detected above the laboratory reporting limit of 0.20 µg/L over the course of two sampling rounds, the detection in the GZ-4 duplicate sample is considered anomalous and PCB concentrations in Site groundwater are not considered to be above action levels. No remedial action is required for PCBs in groundwater under TSCA or the MCP.

5.0 SUMMARY OF REMEDIAL ALTERNATIVES EVALUATIONS

5.1 Remediation Objectives

The remedial goal is to prepare the Site for the North Prospect Block revitalization project by achieving a Permanent Solution with institutional controls (AUL) pursuant to the MCP and an EPA-approved closure per 40 CFR 761.61(c).

5.2 Alternatives Evaluations

In compliance with the MCP, remedial action alternative evaluations for addressing the soil, groundwater, and potential indoor impacts at the Site have been performed and were presented in the 2010 Supplement Phase II CSA and Phase III RAP (TRC, 2010a) and the 2012 Supplement Phase II CSA and Phase III RAP (TRC, 2012a). Refinements to the selected alternative were presented in the May 2012 Phase IV RIP (TRC, 2012b) and the October 2012 Modified Phase IV RIP (TRC, 2012c) consistent with understandings of the available funding. The currently proposed plan is based on final scope adjustments made during the construction cost estimation phase to be consistent with actual funding available.

A range of remedial alternatives have been considered, from maintaining existing Site controls at an approximate cost of $300,000 to cleanup to background conditions at an approximate cost of $8,000,000. (These Phase III cost estimates are approximate order of magnitude costs to support the selection and evaluation of remedial technologies and alternatives.) In between these alternatives were various combinations of capping (for asphalt parking lots), excavation to different depths, and different targeted PCB soil removals. A summary of the remediation plan development is as follows:

- **2010 Phase III RAP** - In the 2010 Phase III RAP, a Temporary Solution based on maintenance of existing Site controls was selected as the most timely and cost effective temporary remedy. The 0 Prospect Street parcel would continue to be used for parking, the rest of the Site would remain fenced and covered with crushed stone, and groundwater and indoor air monitoring would continue.
- **2012 Phase III RAP and May 2012 Phase IV RIP** - In the 2012 Phase III RAP, two options were advanced, based in part on funding considerations. These two options were developed in the May 2012 Phase IV RIP:
    - *Temporary Solution* – Alternative #2 was selected and included targeted removal of soil containing equal to or greater than 50 mg/kg total PCBs, soil removal for VOCs primarily in the northeast corner of 14 Bennett Street (down to 16 feet below grade), possible soil stabilization for metals, off-site soil disposal, excavation backfill with documented clean soil, asphalt capping on the 264-266 Somerville Avenue parcel and a portion of Bennett Street, leaving the balance of the Site fenced and inaccessible to the public, and additive injection for groundwater treatment. The estimated cost was approximately $770,000.
    - *Permanent Solution* – If sufficient funding were to be received, Alternative #3 would become feasible and would have been selected. It would include targeted

removal of soil containing equal to or greater than 10 mg/kg total PCBs, soil removal for VOCs primarily in the northeast corner of 14 Bennett Street (down to 16 feet below grade), asphalt capping on 75% of the Site (requiring 1 foot of soil excavation to maintain grades), soil excavation on 25% of the Site down to three feet below grade, excavation backfilling with documented clean soil, possible soil stabilization for metals, off-site soil disposal, additive injection for groundwater treatment, and an AUL. The estimated cost was approximately $1,680,000.

- **October 2012 Phase IV RIP** - The City was awarded addition funding from EPA and MassDevelopment totaling $2,150,000, and this funding supported the selection of Alternative #4 in the 2012 Phase III RAP. This alternative is similar to Alternative #3 except that a 3-foot clean soil cap would be provided for the entire Site. The estimated cost from the Phase III RAP was $2,100,000.

- **Construction Cost Estimate Stage** – In 2013, TRC prepared detailed construction and environmental support cost estimates for Alternative #4. For transportation and disposal of soil, the largest cost item, TRC formally solicited competitive bids from four disposal firms for fixed unit prices for a range of soil and debris quality and selected the lowest cost bidder. Quotes were also solicited from various other local providers of materials and services. Further, the cost estimate was based on TRC self-performing the work, which is the most efficient and cost-effective approach because it avoids a layer of subcontractor markups and provides TRC with greater control over the work. Additional items were also added to the remediation scope including soil remediation and reporting for 17 Allen Street (requested by MassDEP), evaluation and procurement of environmental insurance (requested by MassDevelopment), and performance and payment bonds (requested by the City). Cost estimates for Alternative #4 then exceeded the available funding.

  To match the existing funding, the following adjustments were made to the work scope to achieve a final cost of $2,150,000, or a reduction of approximately $600,000 from the initial Alternative #4 construction cost estimate:

  - *14 Bennett Street VOC excavation* – The depth of the excavation was reduced from 16 feet below grade to the water table elevation at approximately 8 feet below grade. This eliminated costly sheet piling and excavation dewatering and water treatment and reduced the soil disposal quantity.
  - *Targeted PCB removal* – Soil with PCB concentrations equal to or greater than 50 mg/kg will be removed, instead of equal to or greater than 10 mg/kg. Note that the top three feet of soil will be removed across the Site, and that PCB impacts are primarily in this upper zone. Further discussion of this point is provided below.
  - *Not Returning the Parking Lot* to 0 Prospect Street – With the current development schedule for the Kiley Barrel Site and adjacent parcels, once remediation activities are complete, control of the Site will be turned over to the developer. The previous plan of returning the parking lot to 0 Prospect Street is no longer needed.

Important features of the currently proposed plan compared to the Phase III RAP Alternative #4 are as follows:

	Phase III RAP Alternative #4	**2014 Approach**
Soil Removal		
Shallow Soil removal (0-3-foot) *same for both*		
soil with PCBs ≥50 mg/kg	135 tons	135 tons
soil with PCBs ≥1 to <50 mg/kg	3,444 tons	3,444 tons
soil with PCBs <1 mg/kg	2,156 tons	2,156 tons
Subtotal	***5,735 tons***	***5,735 tons***
Deeper soil removal (>3-foot)		
soil with PCBs ≥50 mg/kg	37 tons	37 tons
soil with PCBs ≥10 to <50 mg/kg	846 tons	212 tons
Subtotal	***883 tons***	***249 tons***
Total	**6,618 tons**	**5,984 tons**
Total Differential	**634 tons**	**(base)**
Depth of Soil Excavation		
Maximum depth	16 feet below grade; requires shoring and dewatering	8 feet below grade
PCBs Remaining On-Site (All below the 3-foot thick soil cap)		
Number of samples analyzed for PCBs remaining after remediation	75	82
Samples with >10 mg/kg	0	5
Maximum detected PCBs	7.80 mg/kg	37.0 mg/kg
Average PCB concentration remaining	0.56 mg/kg	2.15 mg/kg
Approximate Project Cost	**$2,750,000**	**$2,150,000**

6.0 PROPOSED REMEDY

6.1 Summary of Proposed Remedy

The proposed remedial action is based on soil removal and an exposure barrier installation and will effect a risk-based solution that will effectively facilitate the redevelopment of the Former Kiley Barrel Site to safe and productive mixed commercial/residential use. The proposed soil excavation is presented in Figure 4 and estimated soil excavation quantities are presented in Table 2. The proposed plan includes the following key elements:

- **Soil removal and disposal** - Remove and dispose off-site soil containing PCB concentrations equal to or greater than 50 mg/kg and confirm excavation limits with TSCA-compliant verification sampling (see Section 6.2.8 for details). Remove and dispose off-site remaining soil across the Site from the surface to three feet below finish grades and to eight feet in the former floor drain area in the northeast corner of the 14 Bennett Street parcel;
- **Soil stabilization –** Stabilize soils on-Site prior to disposal as needed to render soil non-hazardous with respect to toxicity characteristics as determined by toxicity characteristic leaching procedure (TCLP) testing. The most likely treatment is expected to be for lead;
- **Miscellaneous debris removal and disposal** - Remove impacted and non-impacted concrete, asphalt, and tree stumps and dispose consistent with analytical testing results;
- **Exposure barrier installation** - Install a documented clean three-foot soil or soil/crushed stone exposure barrier with underlying demarcation barrier as part of excavation backfilling consistent with the proposed finish grades and install finish treatments (paving, grass, fencing, etc.);
- **Finish surface treatments –** Install grass and/or crushed stone surface treatments on most of the Site and perimeter fencing around select areas to control loitering. Depending on actual clean-up costs, the finishing of the Site (i.e., fencing, and portion of stone or grassed soil surface) may be altered but would not affect the cleanup remedy;
- **Institutional control implementation –** Record an AUL on the properties to control impacts to the exposure barrier and control access to soil below three feet deep and related soil management; and
- **Groundwater remediation –** Add a remedial additive to the subsurface to degrade chlorinated VOCs in soil and groundwater. This element is not required for TSCA compliance.

The City's approach for the overall Site is to achieve closure through an MCP Permanent Solution including an AUL deed restriction. The City intends to initially obtain a partial Permanent Solution closure with an AUL for soil on the Site following completion of the soil remedy and then enter an MCP Remedy Operation Status phase for continued groundwater monitoring and possible additional groundwater treatment. Following achievement of groundwater remediation objectives, a final MCP Permanent Solution closure report will submitted.

6.2 Remedy Implementation

Remedy implementation is described in terms of Site preparation, environmental monitoring, soil management, soil excavation, soil treatment, soil transportation and disposal, groundwater remedy, TSCA verification sampling, and backfilling and compaction.

6.2.1 Site Preparation

Site preparation in support of cleanup activities includes security fence installation, clearing and grubbing the existing vegetation, remediation area demarcation, and installation of erosion and sediment controls plan (refer to Figure 5).

6.2.1.1 Site Security Fence

A temporary Site security fence will be used to prevent unauthorized access to the Site. Much of the existing fence will remain on site and be temporarily used for Site security during remediation. Alterations to the existing fence line will include extending it to the south to include portions of Bennett Street and enclosing the parking lot at the 0 Prospect Street parcel. The temporary security fence will be removed at the completion of the remediation and replaced in certain areas with new fencing for visual screening and general property access restriction to prevent loitering. The new fencing is not required to prevent exposure to impacted soil and is thus not a remedial response action.

6.2.1.2 Vegetation Clearing

Existing vegetation including trees will be cleared and grubbed from the Site. Above-grade parts of the vegetation will be disposed of off-site without treatment or control. Stumps shall be stockpiled on-Site and cleaned and tested as necessary for off-site disposal. Alternatively, stumps can be assumed to comprise PCB Remediation Waste and disposed accordingly in compliance with TSCA.

6.2.1.3 Remediation Areas Demarcation

A Site survey will establish property lines and an elevation benchmark. Global positioning system (GPS) technology and/or Site survey information will be used to mark out and stake the horizontal extent of planned excavation areas prior to commencing excavation work.

6.2.1.4 Erosion and Sedimentation Control Measures

Erosion and sedimentation control measures will be installed as shown in Figure 6. The sedimentation and erosion controls will be installed prior to commencement of remedial activities. Controls that are damaged during the course of remedial activities will be repaired and will be maintained for the duration of the project. Sedimentation areas will be inspected daily to maintain compliance and to avoid siltation of surface water and groundwater. Erosion and sediment controls for temporary on-Site soil stockpiles will include perimeter hay bales or straw waddles and covers

and liners. At the completion of remedial activities and establishment of finished surfaces, all sedimentation and erosion control measures will be removed and disposed.

The following describes the typical installation of the erosion and sedimentation control measures.

Filter Fabric

The filter fabric will be constructed of a non-rotting, ultraviolet light resistant, woven polyester geotextile with sufficient strength for their intended purpose. For catch basins, the filter fabric will be placed just beneath the catch basin grate. The catch basin grate will be used to secure the filter fabric in place.

Straw Bale Barrier

Straw bales will be placed in a single row with the ends of adjacent bales tightly abutting one another. The bales will be securely anchored by driving at least two stakes through each bale. The straw bales will consist of straw from acceptable grasses and legumes, free from weeds, reeds, twigs, chaff, debris and other objectionable material or excessive amounts of seeds and grains. Straw waddles or logs may also be used.

6.2.2 Environmental Monitoring

Environmental oversight will be required on Site during remedial activities to direct the excavation, segregation and stockpiling of soil, and perform soil screening and safety monitoring of the breathing zone. A summary of planned monitoring activities is provided below.

6.2.2.1 Dust Monitoring

As a health and safety measure during remedial activities, dust monitoring shall be conducted to evaluate Site working conditions to minimize dust exposures to workers and nearby residents. Environmental oversight personnel will conduct real-time field screening of breathing zone dust levels using TSI Dustrak™ (or equivalent) units which will monitor air quality on a real-time basis in the work zone as well as in areas located upwind and downwind of excavation and soil moving activities. The dust monitoring units will be TSI Dustrak™ units (or equivalent) with size-selective inlets for particles of 10 micrometers in diameter or less (PM_{10}), or similar. This instrumentation has an accuracy of 1 microgram per cubic meter ($\mu g/m^3$). Background air samples will be collected at the beginning of each day at least 15 minutes prior to the commencement of soil disturbing activities. The dust monitoring instruments will be calibrated before use and at the end of the day, and placed in weatherproof cases with an omni-directional probe to minimize wind interference. Data will be logged at 60-second intervals and monitored periodically by environmental oversight field personnel during remedial activities. Data will be downloaded daily.

Action Levels

If sustained ambient dust levels exceed the following concentrations at downwind sampling locations the listed Required Action will be taken.

CONTAMINANT	AIR ACTION LEVEL	REQUIRED ACTION
Airborne Particulates (PM_{10})	Any visible dust	Implement corrective measures to control dust
Airborne Particulates (PM_{10})	> 150 µg/m^3 [(a)]	Continue wetting of source area. Re-evaluate and suspend activities until problem corrected*
Airborne Particulates (PM_{10})	> 100 µg/m^3 [(b)]	Continue wetting of source area. Re-evaluate and suspend activities until problem corrected*

[(a)] Based on 15-minute weighted average
[(b)] Based on 8-hour weighted average
* Site activities will only be suspended if they are the cause for the action level exceedance. Records of exceedances will be emailed to Kimberly Tisa, EPA Region 1 PCB Coordinator.

The actions levels are conservatively based upon the EPA National Ambient Air Quality Standard (NAAQS) of 150 µg/m^3 for a 24-hour time period.

6.2.2.2 Dust Suppression

During remedial activities, dust suppression consisting of water sprays shall be routinely implemented, and potential fugitive dust emissions will be monitored, as described in Section 6.2.2.1. Water sprays will be applied as a heavy mist, rather than a water stream, to ensure the water is aerosolized to maximize dust capture/interception and thus dust suppression. Increased water sprays (e.g., additional hoses and/or water volume) will be implemented based on visual observations of effectiveness and instrumented monitoring. Where wind conditions are present that render dust suppression ineffective based on instrument readings and/or visual observations (based on the professional judgment of environmental oversight personnel), those activities will be suspended until favorable wind conditions resume/return or dust suppression suitable for the conditions can be reliably implemented.

6.2.2.3 VOC Monitoring

VOC monitoring will also be performed continuously during remedial activities using a photoionization detector (PID) to monitor the work area and downwind breathing zones. Collected data will be used to evaluate the need for instituting additional safety measures or upgrading personal protective equipment (PPE) levels. Based on existing Site data, significant VOC emissions are not expected during remedial work; however, monitoring of the breathing zone for VOCs will be conducted as a precaution.

Field screening of soil will be conducted as needed during excavation work to monitor soil conditions and excavation progress. During such activities, soil samples will be screened via the MassDEP jar-headspace method for the potential presence of organic vapors.

Action Levels

If PID readings are sustained above 5 parts per million by volume (ppmv) in the breathing zone for at least five minutes, on-Site workers will be moved to an upwind location and designated health and safety personnel will be contacted to evaluate suitable response actions. Any upgrade in respiratory protection will be coordinated with health and safety personnel. Should VOC concentrations in the breathing zone exceed 50 ppmv for a sustained interval, corrective actions will be implemented which may include temporarily discontinuing work, ventilating the work site through the use of mechanical blowers, or upgrading PPE.

6.2.3 Soil Management

6.2.3.1 Description of PCB Remediation Waste to be Managed Under TSCA

Potentially impacted environmental media to be managed under the proposed remedy consists mostly of historic urban fill that will be excavated, treated (as necessary), and removed for off-site landfill disposal. Targeted fill/soil removal will occur in areas and to the depths estimated to contain PCBs at concentrations equal to or greater than 50 mg/kg (Type A). Proposed removal locations are presented in Figure 4. The estimated quantity of Type A soil requiring disposal in a TSCA-regulated disposal facility is approximately 170 tons.

Soil that is classified as Type B or Type E (PCB Remediation Waste with PCBs at a concentration less than 50 mg/kg but greater than 1 mg/kg) will be disposed of as non-RCRA hazardous PCB Remediation Waste at a concentration less than 50 mg.kg. The estimated quantity of the Type B and E soil is approximately 3,660 tons. The total estimated quantity of soil to be excavated and disposed of off-site during the project is approximately 6,000 tons (refer to Table 2).

Where other media may be encountered in the subsurface in the immediate vicinity of areas where the fill/soil contains equal to or greater than 50 mg/kg PCBs, such as remnants of former building foundations, such materials will be tested for PCBs and managed accordingly. If they contain equal to or greater than 50 mg/kg PCBs, they will be managed as TSCA-regulated PCB Remediation Waste.

6.2.3.2 Delineation Sampling

Additional soil sampling will be performed to supplement the existing delineation of PCB Remediation Waste. There are two delineations that will occur:

1) Delineation of soil that has PCBs equal to or greater than 1 mg/kg but less than 50 mg/kg.
2) Delineation of soil that has PCBs at a concentration of 50 mg/kg or greater; and

The first set of delineation will occur prior to soil excavation activities. The second set of delineation sampling will be conducted in conjunction with the post-excavation verification sampling described in Section 6.2.9.

Additional sampling to delineate the extent of soil with equal to or greater than 1 but less than 50 mg/kg total PCBs soil is proposed along the border of 0 Prospect Street and 20-22 Prospect Street

to better define the extent of PCBs at a concentration of 1 mg/kg or greater. The sampling proposed includes a line of test pits at 10 foot intervals about 5 feet north of the 0 Prospect Street southern property line. There will be six locations and 12 samples collected at depths of 0-1 feet and 1-2 feet below ground surface. The sample locations will be north of locations A03, B04, and B05. If PCB concentrations are greater than 1 mg/kg, additional samples will be collected to further delineate. The samples will be analyzed for PCBs via Method 8082 using Soxhlet extraction.

6.2.3.3 Soil Handling

Soil will be properly managed from the point of excavation through disposal or on-site reuse as backfill in the excavations deeper than three feet below grade. Pre-excavation soil characterization data will be used to guide soil management and to optimize soil segregation consistent with disposal facility requirements (i.e., excavated soil will be segregated based on available in-situ soil data for the Site). Segregated soil shall be stored site [i.e. within the MCP Disposal Site boundary (excluding residential areas)] in both lined and covered stockpiles or covered roll-off containers and sampled for disposal waste characterization parameters. Soil shall be transported off-site under a hazardous waste manifest or an MCP Bill of Lading, as appropriate.

Soil that does not violate the MCP's anti-degradation provisions [310 CMR 40.0032(3)] may be reused within the Disposal Site boundary to backfill the deep excavations. Excavated soils are not to be reused as shallow soils (less than 3 feet below finished grade). Soils selected for on-site reuse will be based upon existing assessment results and waste characterization sample data. Soil from the 0 Prospect Street and 264-266 Somerville Street properties are the only soils that may be reused on site. No soil will be reused at off-site locations.

The following classifications are proposed to categorize TSCA-regulated PCB Remediation Waste for segregation at the time of excavation based on existing data and for making a preliminary selection of disposal facilities:

Type A Soil (PCB content equal to or greater than 50 mg/kg PCBs) – Type A soil is PCB Remediation Waste with PCB content equal to or greater than 50 mg/kg and is not expected to be RCRA hazardous (fail TCLP analysis). If hazardous, consideration will be given to treating this soil on-site or at an off-site treatment or disposal facility. This soil must be disposed in a licensed TSCA waste management facility.

Type B Soil (PCB content of greater than 1 to less than 50 mg/kg) – Type B soil has a PCB content greater than 1 mg/kg and less than 50 mg/kg and is classified as PCB Remediation Waste with PCBs at a concentration less than 50 mg/kg. Portions of this soil may also contain metals and/or VOCs at concentrations which may exceed the TCLP toxicity criteria for one or more metals (typically lead) or VOCs. This soil will be treated on-site to render it RCRA non-hazardous waste. Disposal will be at a landfill permitted to accept soil with a PCB concentration greater than 1 mg/kg and less than 50 mg/kg.

Type C, Type D and Type F Soil (PCB content less than 1 mg/kg) –Type C, Type D, and Type F soil have PCB concentrations below 1 mg/kg and different level of hazardous waste components (metals, VOCs, and none, respectively). Type C and Type D soil will be treated on-site to render

it RCRA non-hazardous waste. Disposal will be at a landfill. Type F soil can be disposed of at a landfill or reused on-site to backfill excavations deeper than 3 feet below finished grade. Type F soils are not to be reused as shallow soils (less than 3 feet below finished grade)

Type E soil (PCB content of greater than 1 to less than 50 mg/kg and non-hazardous waste) - Type E soil has a PCB content greater than 1 mg/kg and less than 50 mg/kg in soil, and is not RCRA hazardous waste. This soil is considered PCB Remediation Waste with PCBs at a concentration less than 50 mg/kg. Disposal will be at a landfill permitted to accept PCB Remediation Waste with a PCB concentration less than 50 mg/kg.

Soil will be stockpiled pending waste characterization, or may be directly loaded into trucks for transportation to the disposal facility if adequate waste characterization has been performed. When temporary storage of the soil is required, the soil will be stockpiled on two layers of minimum 6 mil polyethylene plastic sheeting and sampled for waste characterization parameters. A row of hay bales will be placed around the stockpiles and the bottom layers of minimum 6 mil plastic sheeting will be draped over the hay bales to create a berm to contain the soil. The soil stockpile will be covered with minimum 6 mil polyethylene sheeting that will be held in place using hay bales, sand bags, or similar weighted objects (see Figure 6).

In the event of extreme weather conditions, additional actions will be taken as necessary to ensure appropriate containment of stockpiled soil. Surface water runoff will be directed away from stockpiles to prevent erosion and deterioration of materials. The stockpiles will not exceed 35 feet in height with maximum side slopes of 2:1 (horizontal to vertical).

6.2.4 Soil Excavation

Table 2 provides an excavation summary for the expected soil volumes (in place) and estimated weights associated with the excavation areas. Figure 4 depicts the locations of the soil to be excavated as described below. The total volume of PCB Remediation Waste (i.e., soil with PCBs greater than 1 mg/kg) to be excavated for the project will be approximately 2,550 cubic yards in place. Using a bulk soil factor of 1.2, approximately 3,060 cubic yards or 3,830 tons of PCB-impacted soil shall be transported off site for disposal. This includes approximately 115 cubic yards in place or 170 tons of Type A soil (PCB Remediation Waste with equal to or greater than 50 mg/kg) soil.

Figure 4, depicts five areas exhibiting PCB concentrations equal to or greater than 50 mg/kg. All five areas have soil sample data below the proposed depth of excavation confirming PCB concentrations less than 50 mg/kg. These areas will be excavated to the following depths:

a) AREA-A1, targeted by the sample ECS-B2 (0-2 feet), will be excavated to 4.33 feet;
b) AREA-A2, targeted by the sample CMW-9 (0-2 feet), will be excavated to 2.33 feet;
c) AREA-A3, targeted by the sample C04 (1-2 feet), will be excavated to 2.33 feet;
d) AREA-A4 has been subdivide into four sub areas:
    a. AREA-A4a, targeted by the sample 20 PROSPECT-S-5-4 (1-2 feet), will be excavated to 3.33 feet;

b. AREA-A4b, targeted by the samples 20 PROSPECT-S-5-5 (0-1 feet) and 20 PROSPECT-S-5-8 (0-1 feet), will be excavated to 1.33 feet;
c. AREA-A4c, targeted by the samples 20 PROSPECT-S-5-3 (2-3 feet) and 20 PROSPECT-S-5-6 (0-1 and 1-2 feet), will be excavated to 3.33 feet; and
d. AREA-A4d, targeted by the sample 20 PROSPECT-S-5-9 (0-1, 1-2, and 5-7 feet), will be excavated to 7.33 feet.

e) AREA-A5, targeted by the sample L09 (0-1 feet), will be excavated to 1.33 feet.

6.2.5 Debris Disposal

How and if miscellaneous debris is characterized differently than the surrounding soil depends on the size, volume, type, and location of the miscellaneous debris.

- *Small amounts of debris* – will be disposed of with the surrounding characterized soils.
- *Large amounts of porous debris* – porous debris will be segregated according to the type of material (brick, concrete, asphalt, etc.) and the surrounding soil waste characterization type (see Table 2). Sampling protocol will be determined using the May 2011 Standard Operating Procedure (SOP) for Sampling Porous Surfaces for PCBs (USEPA, 2011) in conjunction with discussions with the EPA Region 1 PCB Coordinator, Kimberly Tisa. The analytical results of the samples will determine the location for disposal.
- *Large amounts of non-porous debris* – nonporous debris will be segregated according to the surrounding soil waste characterization type (see Table 2). Sampling protocol will be determined using Subpart P of the TSCA regulations (40 CFR 761) in conjunction with discussions with the EPA Region 1 PCB Coordinator, Kimberly Tisa. The analytical results of the samples will determine the location of disposal.

6.2.6 Soil Treatment

Metals stabilization treatment may be needed for soil that fails TCLP testing for metals, particularly lead, potentially including soil containing equal to or greater than 50 mg/kg PCBs. Pre-characterization sampling and analysis will be performed to better identify soils that will need treatment and a bench-scale treatability study will be performed to determine the required treatment dosage.

Stabilization treatment typically involves physically mixing soil with a powder additive containing magnesium compounds with calcium phosphates or proprietary compounds. A typical dosage for lead is 2 to 5%. The mixing will occur in-situ or in a stockpile in the vicinity of the excavation. Curing occurs within hours and the soil will be re-tested to confirm stabilization prior to disposal.

6.2.7 Soil Transportation and Disposal

A range of disposal facilities were selected to handle the various types of soil and debris potentially encountered at the Site. The planned disposal facilities are as follows:

- Waste Management T.R.E.E. (Turnkey), Rochester, NH – soil with PCB concentrations less than 50 mg/kg and tree stumps;
- CMW Chemical Services, LLC, Model City, NY – soil with PCB concentrations equal to or greater than 50 mg/kg;
- Wayne Disposal, Inc. (EQ), Belleville, MI – Large PCB impacted debris, if necessary.

Soil will be transported to a disposal/recycling facility under an MCP Bill of Lading or Hazardous Waste Manifest, as appropriate.

6.2.8 Groundwater Remedy Implementation

Groundwater impacts do not require remedial action under TSCA. This discussion is an MCP remedy and is included here for completeness. Groundwater remediation will consist of a combination of pre-defined source zone soil removal and the application of a remedial additive into the subsurface via the open soil excavation on 14 Bennett Street and via a pre-defined injection grid on down-gradient properties to enhance the degradation of chlorinated VOCs in groundwater. Groundwater monitoring will be performed to verify the effectiveness of the treatment as part of on-going MCP-related response actions.

6.2.9 TSCA Verification Sampling

Verification soil sampling will be conducted by TRC along the boundaries of the excavated areas immediately after excavation activities, prior to the placement of the demarcation layer and clean backfill material. The results may define additional excavation that is required to achieve a Permanent Solution and comply with TSCA and MCP. For example, if remaining soil contains PCBs at concentrations of equal to or greater than the 50 mg/kg cleanup criteria, then additional excavation would be required.

The details of the verification sampling plan have been designed around the TSCA requirements specified in 40 CFR 761, Subpart O. Verification sampling will be conducted to confirm that the areas with PCB concentrations greater than or equal to 50 mg/kg have been delineated and removed from the Site. Verification soil sampling will consist of discrete samples collected on a 5-foot grid. Sidewall samples will be collected every 5 feet at half the excavation depth or in the case where there are multiple excavation depths (TSCA-A4), at the vertical mid-point of the sidewall. The following table lays out the number of samples for each excavation area:

Excavation Area ID	Area (sq. ft)	Depth of Contamination (ft bgs)	Estimated No. of TSCA Verification Samples	Sample Description
AREA-A1	100	4.33	17	9 bottom samples and 8 sidewall samples
AREA-A2	100	2.33	17	9 bottom samples and 8 sidewall samples
AREA-A3	100	2.33	17	9 bottom samples and 8 sidewall samples
AREA-A4	611	Multiple as deep as 7.33	57	30 bottom samples and 27 sidewall)
AREA-A5	91	1.33	16	8 bottom samples and 8 sidewall samples
TOTAL	**1002**	**Multiple**	**124**	

The samples will be analyzed for PCBs via Method 8082 using Soxhlet extraction.

6.2.10 Contingency Plan

The potential for a significant increase in the quantity of ≥50 mg/kg PCB Remediation Waste (Type A) requiring disposal is considered low. There are only five well defined areas of such impact, and the cost of disposal of this soil category quantity is relatively small compared to the overall disposal and project costs.

Nonetheless, a contingency plan has been developed. To cover potential additional costs, the project cost estimate includes a small contingency for this scenario. There is also flexibility in the extent of post-remediation Site finishing such as the final fencing, and other surface treatments. In addition, the project cost and scope of this cleanup includes the future groundwater remedy with long-term monitoring. In a worst case scenario, these funds could be re-allocated in the short term to soil disposal and additional funding could be solicited to cover the remaining groundwater work. Lastly, the City is currently evaluating the purchase of environmental insurance for this cleanup project to assist with cost overruns or undiscovered issues that may arise.

6.2.11 Backfilling/Compaction and Cap Construction

Once excavation activities are completed, verification soil samples confirm that remediation goals have been achieved, and any remedial additives applied, backfilling shall occur. The stockpiled uncontaminated soil and certified clean sand, gravel, and/or crushed stone from off-site sources shall be used as the backfill materials. The fill shall be placed into an excavation and compacted in successive layers until the finished grade elevations are reached. The fill shall be built up in essentially level lifts not exceeding twelve inches in uncompacted thickness. Each lift of material will be compacted so as to secure a dense, stable and thoroughly compacted mass. Filling operations shall continue until the fill has been brought up to within one foot below the finished grade in areas where crushed stone will be applied to the surface or to within six inches below grade if there are areas where loam and seed will be applied. The finished grade in most areas of the Site will match the existing grade, the exception being in the vicinity of the 264-266 Somerville Avenue parcel. The finished surfaces shall be graded to be reasonably smooth and consistent with

the proposed finished grades. Imported backfill shall be tested at least once from each source to confirm that it is not contaminated with oil and/or hazardous materials.

TRC will mark the extents of the excavation areas and be on- site to monitor activities.

7.0 REFERENCES

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TRC, 2012b, Phase IV Remedy Implementation Plan, Former Kiley Barrel Site, Somerville, Massachusetts, Release Tracking Number 3-2849. TRC Environmental Corporation. May 2012.

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TABLES

Summary of Analytical Results for On-Site Soil Investigation -- 1997 through 2012
Kiley Barrel
Somerville, Massachusetts

Analysis	Analyte	Sample ID:				A03					B02		B03		
		Sample Depth (ft.):				0-0.5	1-2	1-2	2-3	3-5	0-0.5	1-2	0-0.5	1-2/1	2-3/3
		Sample Date:				09/07/11	09/07/11	09/07/11	09/07/11	09/07/11	09/07/11	09/07/11	09/07/11	09/08/11	09/08/11
		S-1/GW-2	S-1/GW-3	UCLs*	TSCA			Field Dup							
PCBs															
(mg/kg)	Aroclor 1016	1	1	100	1	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.46 U	0.12 U	0.11 U	0.11 U	0.11 U
	Aroclor 1221	1	1	100	1	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.46 U	0.12 U	0.11 U	0.11 U	0.11 U
	Aroclor 1232	1	1	100	1	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.46 U	0.12 U	0.11 U	0.11 U	0.11 U
	Aroclor 1242	1	1	100	1	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.46 U	0.12 U	0.11 U	0.11 U	0.11 U
	Aroclor 1248	1	1	100	1	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.46 U	0.12 U	0.11 U	0.11 U	0.11 U
	Aroclor 1254	1	1	100	1	0.10 U	0.11 U	**1.3**	0.10 U	0.10 U	**2.5**	0.12 U	**0.56**	0.11 U	0.11 U
	Aroclor 1260	1	1	100	1	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.46 U	0.12 U	0.11 U	0.11 U	0.11 U
	Aroclor 1262	1	1	100	1	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.46 U	0.12 U	0.11 U	0.11 U	0.11 U
	Aroclor 1268	1	1	100	1	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.46 U	0.12 U	0.11 U	0.11 U	0.11 U
	Total PCBs	1	1	100	1	0.10 U	0.11 U	**1.3**	0.10 U	0.10 U	**2.5**	0.12 U	**0.56**	0.11 U	0.11 U

Notes:

mg/kg - milligrams per kilogram (dry weight) or parts per million (ppm).

J - Estimated value.

U - Compound was not detected at specified quantitation limit.

Values in **Bold** indicate the compound was detected.

Values shown in Bold and shaded type exceed one or more of the listed MassDEP Method 1 standards.

PCBs - Polychlorinated Biphenyls.

TSCA - Toxic Substances Control Act criteria.

UCLs - Upper concentration limits.

* - For reference purposes only.

Summary of Analytical Results for On-Site Soil Investigation -- 1997 through 2012
Kiley Barrel
Somerville, Massachusetts

Analysis	Analyte	Sample ID:				B04		B05		B08		B09			BEN-S-7	
		Sample Depth (ft.):				0-0.5	1-2	0-0.5	1-2	0-0.5	1-2	0-0.5	1-2	1-2	0-1	1-3
		Sample Date:				09/08/11	09/08/11	09/08/11	09/08/11	09/16/11	09/16/11	09/09/11	09/09/11	09/09/11 Field Dup	09/20/11	09/20/11
		S-1/GW-2	S-1/GW-3	UCLs*	TSCA											
PCBs (mg/kg)	Aroclor 1016	1	1	100	1	0.15 U	0.11 U	0.11 U	0.10 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.51 U	0.54 U
	Aroclor 1221	1	1	100	1	0.15 U	0.11 U	0.11 U	0.10 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.51 U	0.54 U
	Aroclor 1232	1	1	100	1	0.15 U	0.11 U	0.11 U	0.10 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.51 U	0.54 U
	Aroclor 1242	1	1	100	1	0.15 U	0.11 U	0.11 U	0.10 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.51 U	0.54 U
	Aroclor 1248	1	1	100	1	0.15 U	**1.1**	0.11 U	0.10 U	0.11 U	**0.48**	0.11 U	0.11 U	0.11 U	0.51 U	0.54 U
	Aroclor 1254	1	1	100	1	**0.83**	**0.61**	**1.2**	0.10 U	**0.15**	**0.38**	**0.18**	0.11 U	0.11 U	0.51 U	0.54 U
	Aroclor 1260	1	1	100	1	0.15 U	0.11 U	0.11 U	0.10 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.51 U	0.54 U
	Aroclor 1262	1	1	100	1	0.15 U	0.11 U	0.11 U	0.10 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.51 U	0.54 U
	Aroclor 1268	1	1	100	1	0.15 U	0.11 U	0.11 U	0.10 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.51 U	0.54 U
	Total PCBs	1	1	100	1	**0.83**	**1.71**	**1.2**	0.10 U	**0.15**	**0.86**	**0.18**	0.11 U	0.11 U	0.51 U	0.54 U

Notes:

mg/kg - milligrams per kilogram (dry weight) or parts per million (ppm).

J - Estimated value.

U - Compound was not detected at specified quantitation limit.

Values in **Bold** indicate the compound was detected.

Values shown in Bold and shaded type exceed one or more of the listed MassDEP Method 1 standards.

PCBs - Polychlorinated Biphenyls.

TSCA - Toxic Substances Control Act criteria.

UCLs - Upper concentration limits.

* - For reference purposes only.

Summary of Analytical Results for On-Site Soil Investigation -- 1997 through 2012
Kiley Barrel
Somerville, Massachusetts

Analysis	Analyte					Sample ID:	BEN-S-8	C01		C02					
						Sample Depth (ft.):	0-1	1-3	0-0.5	1-2	0-0.5	1-2	2-3	3-5	5-7	7-9
						Sample Date:	09/20/11	09/20/11	09/08/11	09/08/11	09/08/11	09/08/11	09/08/11	09/08/11	09/08/11	09/08/11
		S-1/GW-2	S-1/GW-3	UCLs*	TSCA											
PCBs																
(mg/kg)	Aroclor 1016	1	1	100	1		0.52 U	0.11 U	0.11 U	0.12 U	0.11 U	2.3 U	5.6 U	1.1 U	0.11 U	0.12 U
	Aroclor 1221	1	1	100	1		0.52 U	0.11 U	0.11 U	0.12 U	0.11 U	2.3 U	5.6 U	1.1 U	0.11 U	0.12 U
	Aroclor 1232	1	1	100	1		0.52 U	0.11 U	0.11 U	0.12 U	0.11 U	2.3 U	5.6 U	1.1 U	0.11 U	0.12 U
	Aroclor 1242	1	1	100	1		0.52 U	0.11 U	0.11 U	0.12 U	0.11 U	2.3 U	5.6 U	1.1 U	0.11 U	0.12 U
	Aroclor 1248	1	1	100	1		0.52 U	0.11 U	0.11 U	0.12 U	0.11 U	2.3 U	5.6 U	1.1 U	0.11 U	0.12 U
	Aroclor 1254	1	1	100	1		0.52 U	0.11 U	**0.22**	**0.29**	**0.97**	**14**	**44**	**7.8**	**0.24**	0.12 U
	Aroclor 1260	1	1	100	1		0.52 U	0.11 U	0.11 U	0.12 U	0.11 U	2.3 U	5.6 U	1.1 U	0.11 U	0.12 U
	Aroclor 1262	1	1	100	1		0.52 U	0.11 U	0.11 U	0.12 U	0.11 U	2.3 U	5.6 U	1.1 U	0.11 U	0.12 U
	Aroclor 1268	1	1	100	1		0.52 U	0.11 U	0.11 U	0.12 U	0.11 U	2.3 U	5.6 U	1.1 U	0.11 U	0.12 U
	Total PCBs	1	1	100	1		0.52 U	0.11 U	**0.22**	**0.29**	**0.97**	**14**	**44**	**7.8**	**0.24**	0.12 U

Notes:

mg/kg - milligrams per kilogram (dry weight) or parts per million (ppm).

J - Estimated value.

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PCBs - Polychlorinated Biphenyls.

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Summary of Analytical Results for On-Site Soil Investigation -- 1997 through 2012
Kiley Barrel
Somerville, Massachusetts

Analysis	Analyte	Sample ID:				C04						C05		C06	
		Sample Depth (ft.):				0-0.5	1-2	2-3	3-5	5-7	13-15	0-0.5	1-2	0-0.5	1-2
		Sample Date:				09/08/11	09/08/11	09/08/11	09/08/11	09/08/11	09/08/11	09/08/11	09/08/11	09/09/11	09/09/11
		S-1/GW-2	S-1/GW-3	UCLs*	TSCA										
PCBs															
(mg/kg)	Aroclor 1016	1	1	100	1	1.1 U	25 U	0.11 U	0.11 U	0.12 U	0.12 U	0.47 U	0.12 U	0.11 U	0.10 U
	Aroclor 1221	1	1	100	1	1.1 U	25 U	0.11 U	0.11 U	0.12 U	0.12 U	0.47 U	0.12 U	0.11 U	0.10 U
	Aroclor 1232	1	1	100	1	1.1 U	25 U	0.11 U	0.11 U	0.12 U	0.12 U	0.47 U	0.12 U	0.11 U	0.10 U
	Aroclor 1242	1	1	100	1	1.1 U	25 U	0.11 U	0.11 U	0.12 U	0.12 U	0.47 U	0.12 U	0.11 U	0.10 U
	Aroclor 1248	1	1	100	1	1.1 U	25 U	0.11 U	0.11 U	0.12 U	0.12 U	0.47 U	0.12 U	0.11 U	0.10 U
	Aroclor 1254	1	1	100	1	**6.8**	**130**	**1.1**	**0.95**	0.12 U	0.12 U	**2.4**	**0.87**	**0.33**	**0.13**
	Aroclor 1260	1	1	100	1	1.1 U	25 U	0.11 U	0.11 U	0.12 U	0.12 U	0.47 U	0.12 U	0.11 U	0.10 U
	Aroclor 1262	1	1	100	1	1.1 U	25 U	0.11 U	0.11 U	0.12 U	0.12 U	0.47 U	0.12 U	0.11 U	0.10 U
	Aroclor 1268	1	1	100	1	1.1 U	25 U	0.11 U	0.11 U	0.12 U	0.12 U	0.47 U	0.12 U	0.11 U	0.10 U
	Total PCBs	1	1	100	1	**6.8**	**130**	**1.1**	**0.95**	0.12 U	0.12 U	**2.4**	**0.87**	**0.33**	**0.13**

Notes:

mg/kg - milligrams per kilogram (dry weight) or parts per million (ppm).

J - Estimated value.

U - Compound was not detected at specified quantitation limit.

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Values shown in Bold and shaded type exceed one or more of the listed MassDEP Method 1 standards.

PCBs - Polychlorinated Biphenyls.

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Summary of Analytical Results for On-Site Soil Investigation -- 1997 through 2012
Kiley Barrel
Somerville, Massachusetts

Analysis	Analyte					Sample ID:	C07		C08			C10		CMW-6		CMW-7	CMW-9	
						Sample Depth (ft.):	0-0.5	1-2	0-0.5	1-2	1-2	0-0.5	1-2/1	0-4	10-12	0-4	0-2	1-1.2
						Sample Date:	09/09/11	09/09/11	09/09/11	09/09/11	09/09/11 Field Dup	09/09/11	09/09/11	7/8/2003	7/8/2003	7/8/2003	7/29/2003	3/15/2004
		S-1/GW-2	S-1/GW-3	UCLs*	TSCA													
PCBs																		
(mg/kg)	Aroclor 1016	1	1	100	1		0.56 U	0.11 U	0.11 U	0.12 U	0.11 U	0.11 U	0.12 U	0.030 U	0.032 U	0.029 U	0.028 U	0.028 U
	Aroclor 1221	1	1	100	1		0.56 U	0.11 U	0.11 U	0.12 U	0.11 U	0.11 U	0.12 U	0.030 U	0.032 U	0.029 U	0.028 U	0.028 U
	Aroclor 1232	1	1	100	1		0.56 U	0.11 U	0.11 U	0.12 U	0.11 U	0.11 U	0.12 U	0.030 U	0.032 U	0.029 U	0.028 U	0.028 U
	Aroclor 1242	1	1	100	1		0.56 U	0.11 U	0.11 U	0.12 U	0.11 U	0.11 U	0.12 U	0.030 U	0.032 U	0.029 U	0.028 U	0.028 U
	Aroclor 1248	1	1	100	1		0.56 U	0.11 U	0.11 U	0.12 U	0.11 U	0.11 U	0.12 U	**2.4 J**	0.032 U	0.029 U	0.028 U	0.028 U
	Aroclor 1254	1	1	100	1		**3.3**	0.11 U	**0.45**	0.12 U	0.11 U	0.11 U	0.12 U	**3.5 J**	0.032 U	0.029 U	**400**	**0.33**
	Aroclor 1260	1	1	100	1		0.56 U	0.11 U	0.11 U	0.12 U	0.11 U	0.11 U	0.12 U	0.030 U	0.032 U	0.029 U	0.028 U	0.028 U
	Aroclor 1262	1	1	100	1		0.56 U	0.11 U	0.11 U	0.12 U	0.11 U	0.11 U	0.12 U	NA	NA	NA	NA	NA
	Aroclor 1268	1	1	100	1		0.56 U	0.11 U	0.11 U	0.12 U	0.11 U	0.11 U	0.12 U	NA	NA	**37**	NA	NA
	Total PCBs	1	1	100	1		**3.3**	0.11 U	**0.45**	0.12 U	0.11 U	0.11 U	0.12 U	**5.9 J**	0.032 U	**37**	**400**	**0.33**

Notes:

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Kiley Barrel
Somerville, Massachusetts

Analysis	Analyte	S-1/GW-2	S-1/GW-3	UCLs*	TSCA	Sample ID: CMW-10 Sample Depth (ft.): 0-1 (0-2??) Sample Date: 7/29/2003	CS-1 0-1 7/31/2003	CS-2 0-1 7/31/2003	CS-3 0-1 7/31/2003	CS-4 0-1 7/31/2003	CS-6 0-1 7/31/2003	CS-7 0-1 7/31/2003	CS-9 0-1 7/31/2003	CS-10 0-1 7/31/2003	CS-11 0-1 7/31/2003	CS-13 0-1 7/31/2003	CS-16 0-1 7/31/2003	CS-21 0-1 7/31/2003
PCBs																		
(mg/kg)	Aroclor 1016	1	1	100	1	0.026 U	0.026 U	0.027 U	0.027 U	0.026 U	0.025 U	0.027 U	0.026 U	0.026 U	0.028 U	0.026 U	0.027 U	0.025 U
	Aroclor 1221	1	1	100	1	0.026 U	0.026 U	0.027 U	0.027 U	0.026 U	0.025 U	0.027 U	0.026 U	0.026 U	0.028 U	0.026 U	0.027 U	0.025 U
	Aroclor 1232	1	1	100	1	0.026 U	0.026 U	0.027 U	0.027 U	0.026 U	0.025 U	0.027 U	0.026 U	0.026 U	0.028 U	0.026 U	0.027 U	0.025 U
	Aroclor 1242	1	1	100	1	0.026 U	0.026 U	0.027 U	0.027 U	0.026 U	0.025 U	0.027 U	0.026 U	0.026 U	0.028 U	0.026 U	0.027 U	0.025 U
	Aroclor 1248	1	1	100	1	0.026 U	0.026 U	0.027 U	0.027 U	0.026 U	0.025 U	0.027 U	0.026 U	0.026 U	0.028 U	0.026 U	0.027 U	0.025 U
	Aroclor 1254	1	1	100	1	**0.18**	**0.086**	**0.19**	**0.069**	**0.72**	0.025 U	0.027 U	**3.4**	**2.5**	**9.2**	**0.7**	**17**	**2**
	Aroclor 1260	1	1	100	1	0.026 U	0.026 U	0.027 U	0.027 U	0.026 U	0.025 U	**0.74**	0.026 U	0.026 U	0.028 U	0.026 U	0.027 U	0.025 U
	Aroclor 1262	1	1	100	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Aroclor 1268	1	1	100	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Total PCBs	1	1	100	1	**0.18**	**0.086**	**0.19**	**0.069**	**0.72**	0.025 U	0.027 U	**3.4**	**2.5**	**9.2**	**0.7**	**17**	**2**

Notes:

mg/kg - milligrams per kilogram (dry weight) or parts per million (ppm).

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Summary of Analytical Results for On-Site Soil Investigation -- 1997 through 2012
Kiley Barrel
Somerville, Massachusetts

Analysis	Analyte					Sample ID:	D01		D03		D10		E01		E07		
						Sample Depth (ft.):	0-0.5	1-2	0-0.5	1-2	0-0.5	1-2	0-0.5	1-2	0-0.5	1-2	13-15
						Sample Date:	09/09/11	09/09/11	09/09/11	09/09/11	09/09/11	09/09/11	09/19/11	09/19/11	09/12/11	09/12/11	09/12/11
		S-1/GW-2	S-1/GW-3	UCLs*	TSCA												
PCBs																	
(mg/kg)	Aroclor 1016	1	1	100	1		0.12 U	0.11 U	0.11 U	1.2 U	0.11 U	0.11 U	0.10 U	0.10 U	0.56 U	0.11 U	0.11 U
	Aroclor 1221	1	1	100	1		0.12 U	0.11 U	0.11 U	1.2 U	0.11 U	0.11 U	0.10 U	0.10 U	0.56 U	0.11 U	0.11 U
	Aroclor 1232	1	1	100	1		0.12 U	0.11 U	0.11 U	1.2 U	0.11 U	0.11 U	0.10 U	0.10 U	0.56 U	0.11 U	0.11 U
	Aroclor 1242	1	1	100	1		0.12 U	0.11 U	0.11 U	1.2 U	0.11 U	0.11 U	0.10 U	0.10 U	0.56 U	0.11 U	0.11 U
	Aroclor 1248	1	1	100	1		0.12 U	0.11 U	0.11 U	1.2 U	0.11 U	0.11 U	0.10 U	0.10 U	0.56 U	0.11 U	0.11 U
	Aroclor 1254	1	1	100	1		0.12 U	**0.25**	**0.46**	**3.2**	**0.12**	0.11 U	**0.12**	0.10 U	**4.4**	**0.92**	0.11 U
	Aroclor 1260	1	1	100	1		0.12 U	0.11 U	0.11 U	1.2 U	0.11 U	0.11 U	0.10 U	0.10 U	0.56 U	0.11 U	0.11 U
	Aroclor 1262	1	1	100	1		0.12 U	0.11 U	0.11 U	1.2 U	0.11 U	0.11 U	0.10 U	0.10 U	0.56 U	0.11 U	0.11 U
	Aroclor 1268	1	1	100	1		0.12 U	0.11 U	0.11 U	1.2 U	0.11 U	0.11 U	0.10 U	0.10 U	0.56 U	0.11 U	0.11 U
	Total PCBs	1	1	100	1		0.12 U	**0.25**	**0.46**	**3.2**	**0.12**	0.11 U	**0.12**	0.10 U	**4.4**	**0.92**	0.11 U

Notes:

mg/kg - milligrams per kilogram (dry weight) or parts per million (ppm).

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Summary of Analytical Results for On-Site Soil Investigation -- 1997 through 2012
Kiley Barrel
Somerville, Massachusetts

Analysis	Analyte					Sample ID:	E08		E12		ECS-B1		ECS-B2		ECS-B3		ECS-B4	
						Sample Depth (ft.):	0-0.5	1-2/1	0-0.5	1-2	0-2	4-6	0-2	4-6	4-6	6-8	4-6	6-8
						Sample Date:	09/12/11	09/12/11	09/12/11	09/12/11	6/10/2005	6/10/2005	6/10/2005	6/10/2005	6/10/2005	6/10/2005	6/10/2005	6/10/2005
		S-1/GW-2	S-1/GW-3	UCLs*	TSCA													
PCBs																		
(mg/kg)	Aroclor 1016	1	1	100	1		0.10 U	0.12 U	0.12 U	0.12 U	0.559 U	0.0384 U	0.624 U	0.0308 U	0.0326 U	0.033 U	0.0331 U	0.663 U
	Aroclor 1221	1	1	100	1		0.10 U	0.12 U	0.12 U	0.12 U	0.559 U	0.0384 U	0.624 U	0.0308 U	0.0326 U	0.033 U	0.0331 U	0.663 U
	Aroclor 1232	1	1	100	1		0.10 U	0.12 U	0.12 U	0.12 U	0.559 U	0.0384 U	0.624 U	0.0308 U	0.0326 U	0.033 U	0.0331 U	0.663 U
	Aroclor 1242	1	1	100	1		0.10 U	0.12 U	0.12 U	0.12 U	0.559 U	0.0384 U	0.624 U	0.0308 U	0.0326 U	0.033 U	0.0331 U	0.663 U
	Aroclor 1248	1	1	100	1		0.10 U	0.12 U	0.12 U	0.12 U	0.559 U	0.0384 U	0.624 U	0.0308 U	0.0326 U	0.033 U	0.0331 U	0.663 U
	Aroclor 1254	1	1	100	1		**1.2**	**0.27**	**0.49**	**0.33**	**6.64**	**1.18**	**54.3**	**0.735**	0.0326 U	0.033 U	0.0331 U	**31.5**
	Aroclor 1260	1	1	100	1		0.10 U	0.12 U	0.12 U	0.12 U	**1.2**	**0.224**	**6.33**	**0.0922**	0.0326 U	0.033 U	0.0331 U	**3.87**
	Aroclor 1262	1	1	100	1		0.10 U	0.12 U	0.12 U	0.12 U	0.559 U	0.0384 U	0.624 U	0.0308 U	0.0326 U	0.033 U	0.0331 U	0.663 U
	Aroclor 1268	1	1	100	1		0.10 U	0.12 U	0.12 U	0.12 U	0.559 U	0.0384 U	0.624 U	0.0308 U	0.0326 U	0.033 U	0.0331 U	0.663 U
	Total PCBs	1	1	100	1		**1.2**	**0.27**	**0.49**	**0.33**	**7.84**	**1.404**	**60.63**	**0.8272**	0.0326 U	0.033 U	0.0331 U	**35.37**

Notes:

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Summary of Analytical Results for On-Site Soil Investigation -- 1997 through 2012
Kiley Barrel
Somerville, Massachusetts

Analysis	Analyte					Sample ID:	ECS-B5	ECS-B6	ECS-B7		ECS-B8		F03		F12		
						Sample Depth (ft.):	4-6	6-8	0-2	2-4	0-2	2-4	0-0.5	1-2	0-0.5	1-2	1-2
						Sample Date:	6/10/2005	6/10/2005	6/10/2005	6/10/2005	6/10/2005	6/10/2005	09/20/11	09/20/11	09/12/11	09/12/11	09/12/11
		S-1/GW-2	S-1/GW-3	UCLs*	TSCA												Field Dup
PCBs																	
(mg/kg)	Aroclor 1016	1	1	100	1		0.032 U	0.0382 U	0.0508 U	0.0306 U	0.0321 U	0.029 U	0.0306 U	0.11 U	0.55 U	0.12 U	0.13 U	0.13 U
	Aroclor 1221	1	1	100	1		0.032 U	0.0382 U	0.0508 U	0.0306 U	0.0321 U	0.029 U	0.0306 U	0.11 U	0.55 U	0.12 U	0.13 U	0.13 U
	Aroclor 1232	1	1	100	1		0.032 U	0.0382 U	0.0508 U	0.0306 U	0.0321 U	0.029 U	0.0306 U	0.11 U	0.55 U	0.12 U	0.13 U	0.13 U
	Aroclor 1242	1	1	100	1		0.032 U	0.0382 U	0.0508 U	0.0306 U	0.0321 U	0.029 U	0.0306 U	0.11 U	0.55 U	0.12 U	0.13 U	0.13 U
	Aroclor 1248	1	1	100	1		0.032 U	0.0382 U	0.0508 U	0.0306 U	0.0321 U	0.029 U	0.0306 U	0.11 U	0.55 U	0.12 U	0.13 U	0.13 U
	Aroclor 1254	1	1	100	1		0.032 U	**0.187**	0.0508 U	0.0306 U	0.0321 U	0.029 U	0.0306 U	**0.20**	0.55 U	**0.51**	0.13 U	0.13 U
	Aroclor 1260	1	1	100	1		0.032 U	**0.13**	0.0508 U	0.0306 U	0.0321 U	0.029 U	0.0306 U	**0.13**	0.55 U	0.12 U	0.13 U	0.13 U
	Aroclor 1262	1	1	100	1		0.032 U	0.0382 U	0.0508 U	0.0306 U	0.0321 U	0.029 U	0.0306 U	0.11 U	0.55 U	0.12 U	0.13 U	0.13 U
	Aroclor 1268	1	1	100	1		0.032 U	0.0382 U	0.0508 U	0.0306 U	0.0321 U	0.029 U	0.0306 U	0.11 U	0.55 U	0.12 U	0.13 U	0.13 U
	Total PCBs	1	1	100	1		0.032 U	**0.317**	0.0508 U	0.0306 U	0.0321 U	0.029 U	0.0306 U	**0.33**	0.55 U	**0.51**	0.13 U	0.13 U

Notes:

mg/kg - milligrams per kilogram (dry weight) or parts per million (ppm).

J - Estimated value.

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Summary of Analytical Results for On-Site Soil Investigation -- 1997 through 2012
Kiley Barrel
Somerville, Massachusetts

Analysis	Analyte	Sample ID:				G05		G06						H06		H07	
		Sample Depth (ft.):				0-0.5	1-2	0-0.5	1-2	2-3	3-5	5-7	7-9	0-1	1-3	0-0.5	1-2
		Sample Date:				09/19/11	09/19/11	09/19/11	09/19/11	09/19/11	09/19/11	09/19/11	09/19/11	1/20/2012	1/20/2012	09/19/11	09/19/11
		S-1/GW-2	S-1/GW-3	UCLs*	TSCA												
PCBs																	
(mg/kg)	Aroclor 1016	1	1	100	1	0.59 U	0.56 U	5.4 U	0.11 U	0.12 U	0.12 U	0.12 U	0.12 U	5.1 U	0.12 U	0.53 U	0.11 U
	Aroclor 1221	1	1	100	1	0.59 U	0.56 U	5.4 U	0.11 U	0.12 U	0.12 U	0.12 U	0.12 U	5.1 U	0.12 U	0.53 U	0.11 U
	Aroclor 1232	1	1	100	1	0.59 U	0.56 U	5.4 U	0.11 U	0.12 U	0.12 U	0.12 U	0.12 U	5.1 U	0.12 U	0.53 U	0.11 U
	Aroclor 1242	1	1	100	1	0.59 U	0.56 U	5.4 U	0.11 U	0.12 U	0.12 U	0.12 U	0.12 U	5.1 U	0.12 U	0.53 U	0.11 U
	Aroclor 1248	1	1	100	1	0.59 U	0.56 U	5.4 U	0.11 U	0.12 U	0.12 U	0.12 U	0.12 U	5.1 U	0.12 U	0.53 U	0.11 U
	Aroclor 1254	1	1	100	1	0.59 U	0.56 U	**23**	0.11 U	0.12 U	0.12 U	0.12 U	0.12 U	**30**	**0.40**	**1.1**	0.11 U
	Aroclor 1260	1	1	100	1	0.59 U	0.56 U	5.4 U	0.11 U	0.12 U	0.12 U	0.12 U	0.12 U	5.1 U	0.12 U	0.53 U	0.11 U
	Aroclor 1262	1	1	100	1	0.59 U	0.56 U	5.4 U	0.11 U	0.12 U	0.12 U	0.12 U	0.12 U	5.1 U	0.12 U	0.53 U	0.11 U
	Aroclor 1268	1	1	100	1	0.59 U	0.56 U	5.4 U	0.11 U	0.12 U	0.12 U	0.12 U	0.12 U	5.1 U	0.12 U	0.53 U	0.11 U
	Total PCBs	1	1	100	1	0.59 U	0.56 U	**23**	0.11 U	0.12 U	0.12 U	0.12 U	0.12 U	**30**	**0.40**	**1.1**	0.11 U

Notes:

mg/kg - milligrams per kilogram (dry weight) or parts per million (ppm).

J - Estimated value.

U - Compound was not detected at specified quantitation limit.

Values in **Bold** indicate the compound was detected.

Values shown in Bold and shaded type exceed one or more of the listed MassDEP Method 1 standards.

PCBs - Polychlorinated Biphenyls.

TSCA - Toxic Substances Control Act criteria.

UCLs - Upper concentration limits.

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Summary of Analytical Results for On-Site Soil Investigation -- 1997 through 2012
Kiley Barrel
Somerville, Massachusetts

Analysis	Analyte					Sample ID:	H08	H11		I06		I06-R		
						Sample Depth (ft.):	0-0.5	1-2	0-0.5	1-2	0-0.5	1-2	0-1	1-3	1-3
						Sample Date:	09/12/11	09/12/11	09/13/11	09/13/11	09/20/11	09/20/11	1/20/2012	1/20/2012	1/20/2012
		S-1/GW-2	S-1/GW-3	UCLs*	TSCA										Field Dup
PCBs															
(mg/kg)	Aroclor 1016	1	1	100	1		1.1 U	0.11 U	1.1 U	1.1 U	0.62 U	0.58 U	0.96 U	0.12 U	0.12 U
	Aroclor 1221	1	1	100	1		1.1 U	0.11 U	1.1 U	1.1 U	0.62 U	0.58 U	0.96 U	0.12 U	0.12 U
	Aroclor 1232	1	1	100	1		1.1 U	0.11 U	1.1 U	1.1 U	0.62 U	0.58 U	0.96 U	0.12 U	0.12 U
	Aroclor 1242	1	1	100	1		1.1 U	0.11 U	1.1 U	1.1 U	0.62 U	0.58 U	0.96 U	0.12 U	0.12 U
	Aroclor 1248	1	1	100	1		1.1 U	0.11 U	1.1 U	1.1 U	0.62 U	0.58 U	0.96 U	0.12 U	0.12 U
	Aroclor 1254	1	1	100	1		**8.2**	**0.19**	**5.2**	**7.4**	**1.2**	0.58 U	**9.1**	**0.92**	**0.89**
	Aroclor 1260	1	1	100	1		1.1 U	0.11 U	1.1 U	1.1 U	**0.95**	0.58 U	0.96 U	0.12 U	0.12 U
	Aroclor 1262	1	1	100	1		1.1 U	0.11 U	1.1 U	1.1 U	0.62 U	0.58 U	0.96 U	0.12 U	0.12 U
	Aroclor 1268	1	1	100	1		1.1 U	0.11 U	1.1 U	1.1 U	0.62 U	0.58 U	0.96 U	0.12 U	0.12 U
	Total PCBs	1	1	100	1		**8.2**	**0.19**	**5.2**	**7.4**	**2.15**	0.58 U	**9.1**	**0.92**	**0.89**

Notes:

mg/kg - milligrams per kilogram (dry weight) or parts per million (ppm).

J - Estimated value.

U - Compound was not detected at specified quantitation limit.

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Values shown in Bold and shaded type exceed one or more of the listed MassDEP Method 1 standards.

PCBs - Polychlorinated Biphenyls.

TSCA - Toxic Substances Control Act criteria.

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Summary of Analytical Results for On-Site Soil Investigation -- 1997 through 2012
Kiley Barrel
Somerville, Massachusetts

Analysis	Analyte					Sample ID:	I07			I09				I10			
						Sample Depth (ft.):	0-0.5	1-2	9-11/10	13-15	0-0.5	1-2	2-3	3-5	0-0.5	1-2	2-3	3-5
						Sample Date:	09/19/11	09/19/11	09/19/11	09/19/11	09/13/11	09/13/11	09/13/11	09/13/11	09/13/11	09/13/11	09/13/11	09/13/11
		S-1/GW-2	S-1/GW-3	UCLs*	TSCA													
PCBs																		
(mg/kg)	Aroclor 1016	1	1	100	1		0.22 U	0.55 U	0.13 U	0.11 U	4.6 U	1.1 U	0.11 U	0.15 U	2.1 U	1.1 U	0.24 U	0.27 U
	Aroclor 1221	1	1	100	1		0.22 U	0.55 U	0.13 U	0.11 U	4.6 U	1.1 U	0.11 U	0.15 U	2.1 U	1.1 U	0.24 U	0.27 U
	Aroclor 1232	1	1	100	1		0.22 U	0.55 U	0.13 U	0.11 U	4.6 U	1.1 U	0.11 U	0.15 U	2.1 U	1.1 U	0.24 U	0.27 U
	Aroclor 1242	1	1	100	1		0.22 U	0.55 U	0.13 U	0.11 U	4.6 U	1.1 U	0.11 U	0.15 U	2.1 U	1.1 U	0.24 U	0.27 U
	Aroclor 1248	1	1	100	1		0.22 U	0.55 U	0.13 U	0.11 U	4.6 U	1.1 U	0.11 U	0.15 U	2.1 U	1.1 U	0.24 U	0.27 U
	Aroclor 1254	1	1	100	1		0.22 U	0.55 U	0.13 U	0.11 U	**13**	**5.7**	0.11 U	**0.16**	**12**	**5.7**	**1.6**	**2.0**
	Aroclor 1260	1	1	100	1		**2.1**	0.55 U	0.13 U	0.11 U	4.6 U	1.1 U	0.11 U	0.15 U	2.1 U	1.1 U	0.24 U	0.27 U
	Aroclor 1262	1	1	100	1		0.22 U	0.55 U	0.13 U	0.11 U	4.6 U	1.1 U	0.11 U	0.15 U	2.1 U	1.1 U	0.24 U	0.27 U
	Aroclor 1268	1	1	100	1		0.22 U	0.55 U	0.13 U	0.11 U	4.6 U	1.1 U	0.11 U	0.15 U	2.1 U	1.1 U	0.24 U	0.27 U
	Total PCBs	1	1	100	1		**2.1**	0.55 U	0.13 U	0.11 U	**13**	**5.7**	0.11 U	**0.16**	**12**	**5.7**	**1.6**	**2.0**

Notes:

mg/kg - milligrams per kilogram (dry weight) or parts per million (ppm).

J - Estimated value.

U - Compound was not detected at specified quantitation limit.

Values in **Bold** indicate the compound was detected.

Values shown in Bold and shaded type exceed one or more of the listed MassDEP Method 1 standards.

PCBs - Polychlorinated Biphenyls.

TSCA - Toxic Substances Control Act criteria.

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Summary of Analytical Results for On-Site Soil Investigation -- 1997 through 2012
Kiley Barrel
Somerville, Massachusetts

Analysis	Analyte	Sample ID:				I10 (cont)			J09		J12						
		Sample Depth (ft.):				5-7	7-9	13-15	0-0.5	1-2	0-0.5	1-2	1-2	2-3	3-5/5	5-7	13-15
		Sample Date:				09/13/11	09/13/11	09/13/11	09/13/11	09/13/11	09/13/11	09/13/11	09/13/11 Field Dup	09/13/11	09/13/11	09/13/11	09/13/11
		S-1/GW-2	S-1/GW-3	UCLs*	TSCA												
PCBs																	
(mg/kg)	Aroclor 1016	1	1	100	1	0.13 U	0.18 U	0.12 U	0.11 U	0.12 U	1.0 U	1.1 U	0.55 U	5.7 U	0.12 U	0.12 U	0.12 U
	Aroclor 1221	1	1	100	1	0.13 U	0.18 U	0.12 U	0.11 U	0.12 U	1.0 U	1.1 U	0.55 U	5.7 U	0.12 U	0.12 U	0.12 U
	Aroclor 1232	1	1	100	1	0.13 U	0.18 U	0.12 U	0.11 U	0.12 U	1.0 U	1.1 U	0.55 U	5.7 U	0.12 U	0.12 U	0.12 U
	Aroclor 1242	1	1	100	1	0.13 U	0.18 U	0.12 U	0.11 U	0.12 U	1.0 U	1.1 U	0.55 U	5.7 U	0.12 U	0.12 U	0.12 U
	Aroclor 1248	1	1	100	1	0.13 U	0.18 U	0.12 U	0.11 U	0.12 U	1.0 U	1.1 U	0.55 U	5.7 U	0.12 U	0.12 U	0.12 U
	Aroclor 1254	1	1	100	1	0.13 U	0.18 U	0.12 U	0.11 U	0.12 U	**4.2**	**7.7**	**2.9**	**47**	**0.64**	**0.31**	0.12 U
	Aroclor 1260	1	1	100	1	0.13 U	0.18 U	0.12 U	0.11 U	0.12 U	1.0 U	1.1 U	0.55 U	5.7 U	0.12 U	0.12 U	0.12 U
	Aroclor 1262	1	1	100	1	0.13 U	0.18 U	0.12 U	0.11 U	0.12 U	1.0 U	1.1 U	0.55 U	5.7 U	0.12 U	0.12 U	0.12 U
	Aroclor 1268	1	1	100	1	0.13 U	0.18 U	0.12 U	0.11 U	0.12 U	1.0 U	1.1 U	0.55 U	5.7 U	0.12 U	0.12 U	0.12 U
	Total PCBs	1	1	100	1	0.13 U	0.18 U	0.12 U	0.11 U	0.12 U	**4.2**	**7.7**	**2.9**	**47**	**0.64**	**0.31**	0.12 U

Notes:

mg/kg - milligrams per kilogram (dry weight) or parts per million (ppm).

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Summary of Analytical Results for On-Site Soil Investigation -- 1997 through 2012
Kiley Barrel
Somerville, Massachusetts

Analysis	Analyte					Sample ID:		K06				K07		K08		K09	
						Sample Depth (ft.):											
						Sample Date:											
		S-1/GW-2	S-1/GW-3	UCLs*	TSCA	0-1 1/20/2012	1-3 1/20/2012	0-0.5 09/20/11	1-2 09/20/11	2-3 09/20/11	3-5 09/20/11	0-0.5 09/19/11	1-2 09/19/11	0-0.5 09/13/11	1-2 09/13/11	0-0.5 09/13/11	1-2 09/13/11
PCBs																	
(mg/kg)	Aroclor 1016	1	1	100	1	1.1 U	0.23 U	5.4 U	27 U	0.11 U	0.12 U	0.11 U	0.60 U	0.22 U	0.11 U	1.1 U	0.15 U
	Aroclor 1221	1	1	100	1	1.1 U	0.23 U	5.4 U	27 U	0.11 U	0.12 U	0.11 U	0.60 U	0.22 U	0.11 U	1.1 U	0.15 U
	Aroclor 1232	1	1	100	1	1.1 U	0.23 U	5.4 U	27 U	0.11 U	0.12 U	0.11 U	0.60 U	0.22 U	0.11 U	1.1 U	0.15 U
	Aroclor 1242	1	1	100	1	1.1 U	0.23 U	5.4 U	27 U	0.11 U	0.12 U	0.11 U	0.60 U	0.22 U	0.11 U	1.1 U	0.15 U
	Aroclor 1248	1	1	100	1	1.1 U	0.23 U	5.4 U	27 U	0.11 U	0.12 U	0.11 U	0.60 U	0.22 U	0.11 U	1.1 U	0.15 U
	Aroclor 1254	1	1	100	1	**7.0**	**1.9**	**7.7**	**45**	**0.35**	0.12 U	**0.12**	0.60 U	**1.0**	0.11 U	**8.6**	**0.40**
	Aroclor 1260	1	1	100	1	1.1 U	0.23 U	5.4 U	27 U	0.11 U	0.12 U	0.11 U	0.60 U	0.22 U	0.11 U	1.1 U	0.15 U
	Aroclor 1262	1	1	100	1	1.1 U	0.23 U	5.4 U	27 U	0.11 U	0.12 U	0.11 U	0.60 U	0.22 U	0.11 U	1.1 U	0.15 U
	Aroclor 1268	1	1	100	1	1.1 U	0.23 U	5.4 U	27 U	0.11 U	0.12 U	0.11 U	0.60 U	0.22 U	0.11 U	1.1 U	0.15 U
	Total PCBs	1	1	100	1	**7.0**	**1.9**	**7.7**	**45**	**0.35**	0.12 U	**0.12**	0.60 U	**1.0**	0.11 U	**8.6**	**0.40**

Notes:

mg/kg - milligrams per kilogram (dry weight) or parts per million (ppm).

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Summary of Analytical Results for On-Site Soil Investigation -- 1997 through 2012
Kiley Barrel
Somerville, Massachusetts

Analysis	Analyte	Sample ID:				K15		L05		L06		L06-R		L07		
		Sample Depth (ft.):				0-0.5	1-2	0-1	1-3	0-0.5	1-2	0-1	1-3	0-0.5	1-2	1-2
		Sample Date:				09/13/11	09/13/11	1/20/2012	1/20/2012	09/20/11	09/20/11	1/20/2012	1/20/2012	09/19/11	09/19/11	09/19/11 Field Dup
		S-1/GW-2	S-1/GW-3	UCLs*	TSCA											
PCBs																
(mg/kg)	Aroclor 1016	1	1	100	1	0.41 U	0.12 U	9.1 U	12 U	5.5 U	0.58 U	1.1 U	0.11 U	0.50 U	0.10 U	0.11 U
	Aroclor 1221	1	1	100	1	0.41 U	0.12 U	9.1 U	12 U	5.5 U	0.58 U	1.1 U	0.11 U	0.50 U	0.10 U	0.11 U
	Aroclor 1232	1	1	100	1	0.41 U	0.12 U	9.1 U	12 U	5.5 U	0.58 U	1.1 U	0.11 U	0.50 U	0.10 U	0.11 U
	Aroclor 1242	1	1	100	1	0.41 U	0.12 U	9.1 U	12 U	5.5 U	0.58 U	1.1 U	0.11 U	0.50 U	0.10 U	0.11 U
	Aroclor 1248	1	1	100	1	0.41 U	0.12 U	**52**	12 U	5.5 U	0.58 U	1.1 U	0.11 U	0.50 U	0.10 U	0.11 U
	Aroclor 1254	1	1	100	1	**1.3**	**0.36**	**43**	**19**	**5.9**	0.58 U	**7.8**	0.11 U	0.50 U	0.10 U	**0.16**
	Aroclor 1260	1	1	100	1	0.41 U	0.12 U	9.1 U	12 U	5.5 U	0.58 U	1.1 U	0.11 U	**0.96**	0.10 U	0.11 U
	Aroclor 1262	1	1	100	1	0.41 U	0.12 U	9.1 U	12 U	5.5 U	0.58 U	1.1 U	0.11 U	0.50 U	0.10 U	0.11 U
	Aroclor 1268	1	1	100	1	0.41 U	0.12 U	9.1 U	12 U	5.5 U	0.58 U	1.1 U	0.11 U	0.50 U	0.10 U	0.11 U
	Total PCBs	1	1	100	1	**1.3**	**0.36**	**95**	**19**	**5.9**	0.58 U	**7.8**	0.11 U	**0.96**	0.10 U	**0.16**

Notes:

mg/kg - milligrams per kilogram (dry weight) or parts per million (ppm).

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Summary of Analytical Results for On-Site Soil Investigation -- 1997 through 2012
Kiley Barrel
Somerville, Massachusetts

Analysis	Analyte					Sample ID:											
						L08		L09					L12		L13		
						Sample Depth (ft.):											
						0-0.5	1-2	0-0.5	1-2	2-3	3-5	13-15	0-0.5	1-2	0-0.5	1-2	2-3
						Sample Date:											
		S-1/GW-2	S-1/GW-3	UCLs*	TSCA	09/14/11	09/14/11	09/14/11	09/14/11	09/14/11	09/14/11	09/14/11	09/14/11	09/14/11	09/13/11	09/13/11	09/13/11
PCBs																	
(mg/kg)	Aroclor 1016	1	1	100	1	1.1 U	1.2 U	6.3 U	0.12 U	0.12 U	0.12 U	0.13 U	0.11 U	1.1 U	0.42 U	5.7 U	0.11 U
	Aroclor 1221	1	1	100	1	1.1 U	1.2 U	6.3 U	0.12 U	0.12 U	0.12 U	0.13 U	0.11 U	1.1 U	0.42 U	5.7 U	0.11 U
	Aroclor 1232	1	1	100	1	1.1 U	1.2 U	6.3 U	0.12 U	0.12 U	0.12 U	0.13 U	0.11 U	1.1 U	0.42 U	5.7 U	0.11 U
	Aroclor 1242	1	1	100	1	1.1 U	1.2 U	6.3 U	0.12 U	0.12 U	0.12 U	0.13 U	0.11 U	1.1 U	0.42 U	5.7 U	0.11 U
	Aroclor 1248	1	1	100	1	1.1 U	1.2 U	6.3 U	0.12 U	0.12 U	0.12 U	0.13 U	0.11 U	1.1 U	0.42 U	5.7 U	0.11 U
	Aroclor 1254	1	1	100	1	**8.3**	**7.6**	**50**	**1.5**	**0.17**	**0.12**	0.13 U	**0.29**	**6.2**	**1.9**	**45**	**1.2**
	Aroclor 1260	1	1	100	1	1.1 U	1.2 U	6.3 U	0.12 U	0.12 U	0.12 U	0.13 U	0.11 U	1.1 U	0.42 U	5.7 U	0.11 U
	Aroclor 1262	1	1	100	1	1.1 U	1.2 U	6.3 U	0.12 U	0.12 U	0.12 U	0.13 U	0.11 U	1.1 U	0.42 U	5.7 U	0.11 U
	Aroclor 1268	1	1	100	1	1.1 U	1.2 U	6.3 U	0.12 U	0.12 U	0.12 U	0.13 U	0.11 U	1.1 U	0.42 U	5.7 U	0.11 U
	Total PCBs	1	1	100	1	**8.3**	**7.6**	**50**	**1.5**	**0.17**	**0.12**	0.13 U	**0.29**	**6.2**	**1.9**	**45**	**1.2**

Notes:

mg/kg - milligrams per kilogram (dry weight) or parts per million (ppm).

J - Estimated value.

U - Compound was not detected at specified quantitation limit.

Values in **Bold** indicate the compound was detected.

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Summary of Analytical Results for On-Site Soil Investigation -- 1997 through 2012
Kiley Barrel
Somerville, Massachusetts

Analysis	Analyte					Sample ID:	L13 (cont)	L14		M07		M09		M11		M15	
						Sample Depth (ft.):	3-5	13-15	0-0.5	1-2	0-0.5	1-2	0-0.5	1-2	0-0.5	1-2	0-0.5	1-2
						Sample Date:	09/13/11	09/13/11	09/13/11	09/13/11	09/19/11	09/19/11	09/14/11	09/14/11	09/14/11	09/14/11	09/14/11	09/14/11
		S-1/GW-2	S-1/GW-3	UCLs*	TSCA													
PCBs																		
(mg/kg)	Aroclor 1016	1	1	100	1		0.12 U	0.12 U	1.1 U	1.1 U	0.52 U	0.11 U	0.12 U	0.25 U	0.53 U	0.14 U	0.11 U	0.12 U
	Aroclor 1221	1	1	100	1		0.12 U	0.12 U	1.1 U	1.1 U	0.52 U	0.11 U	0.12 U	0.25 U	0.53 U	0.14 U	0.11 U	0.12 U
	Aroclor 1232	1	1	100	1		0.12 U	0.12 U	1.1 U	1.1 U	0.52 U	0.11 U	0.12 U	0.25 U	0.53 U	0.14 U	0.11 U	0.12 U
	Aroclor 1242	1	1	100	1		0.12 U	0.12 U	1.1 U	1.1 U	0.52 U	0.11 U	0.12 U	0.25 U	0.53 U	0.14 U	0.11 U	0.12 U
	Aroclor 1248	1	1	100	1		0.12 U	0.12 U	1.1 U	1.1 U	**1.8**	0.11 U	0.12 U	0.25 U	0.53 U	0.14 U	0.11 U	0.12 U
	Aroclor 1254	1	1	100	1		0.12 U	0.12 U	**7.0**	**8.0**	**2.1**	**0.28**	**1.4**	**2.1**	**3.3**	**1.7**	**0.55**	0.12 U
	Aroclor 1260	1	1	100	1		0.12 U	0.12 U	1.1 U	1.1 U	0.52 U	0.11 U	0.12 U	0.25 U	0.53 U	0.14 U	0.11 U	0.12 U
	Aroclor 1262	1	1	100	1		0.12 U	0.12 U	1.1 U	1.1 U	0.52 U	0.11 U	0.12 U	0.25 U	0.53 U	0.14 U	0.11 U	0.12 U
	Aroclor 1268	1	1	100	1		0.12 U	0.12 U	1.1 U	1.1 U	0.52 U	0.11 U	0.12 U	0.25 U	0.53 U	0.14 U	0.11 U	0.12 U
	Total PCBs	1	1	100	1		0.12 U	0.12 U	**7.0**	**8.0**	**3.9**	**0.28**	**1.4**	**2.1**	**3.3**	**1.7**	**0.55**	0.12 U

Notes:

mg/kg - milligrams per kilogram (dry weight) or parts per million (ppm).

J - Estimated value.

U - Compound was not detected at specified quantitation limit.

Values in **Bold** indicate the compound was detected.

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Summary of Analytical Results for On-Site Soil Investigation -- 1997 through 2012
Kiley Barrel
Somerville, Massachusetts

Analysis	Analyte					Sample ID:	N07		N08						N09		O07	
						Sample Depth (ft.):	0-0.5	1-2/2	0-0.5	1-2	1-2	2-3	3-5	13-15	0-0.5	1-2	0-1/1	1-3/3
						Sample Date:	09/19/11	09/19/11	09/14/11	09/14/11	09/14/11 Field Dup	09/14/11	09/14/11	09/14/11	09/14/11	09/14/11	09/20/11	09/20/11
		S-1/GW-2	S-1/GW-3	UCLs*	TSCA													
PCBs																		
(mg/kg)	Aroclor 1016	1	1	100	1		2.1 U	0.13 U	1.1 U	0.44 U	0.58 U	0.12 U	0.15 U	0.12 U	0.11 U	0.13 U	2.1 U	0.11 U
	Aroclor 1221	1	1	100	1		2.1 U	0.13 U	1.1 U	0.44 U	0.58 U	0.12 U	0.15 U	0.12 U	0.11 U	0.13 U	2.1 U	0.11 U
	Aroclor 1232	1	1	100	1		2.1 U	0.13 U	1.1 U	0.44 U	0.58 U	0.12 U	0.15 U	0.12 U	0.11 U	0.13 U	2.1 U	0.11 U
	Aroclor 1242	1	1	100	1		2.1 U	0.13 U	1.1 U	0.44 U	0.58 U	0.12 U	0.15 U	0.12 U	0.11 U	0.13 U	2.1 U	0.11 U
	Aroclor 1248	1	1	100	1		2.1 U	0.13 U	1.1 U	0.44 U	0.58 U	0.12 U	0.15 U	0.12 U	0.11 U	0.13 U	2.1 U	0.11 U
	Aroclor 1254	1	1	100	1		**2.8**	0.13 U	**11**	**2.4**	**5.4**	0.12 U	**0.23**	0.12 U	**1.3**	**0.26**	**3.1**	0.11 U
	Aroclor 1260	1	1	100	1		2.1 U	0.13 U	1.1 U	0.44 U	0.58 U	0.12 U	0.15 U	0.12 U	0.11 U	0.13 U	2.1 U	0.11 U
	Aroclor 1262	1	1	100	1		2.1 U	0.13 U	1.1 U	0.44 U	0.58 U	0.12 U	0.15 U	0.12 U	0.11 U	0.13 U	2.1 U	0.11 U
	Aroclor 1268	1	1	100	1		2.1 U	0.13 U	1.1 U	0.44 U	**2.3**	0.12 U	0.15 U	0.12 U	0.11 U	0.13 U	2.1 U	0.11 U
	Total PCBs	1	1	100	1		**2.8**	0.13 U	**11**	**2.4**	**7.7**	0.12 U	**0.23**	0.12 U	**1.3**	**0.26**	**3.1**	0.11 U

Notes:

mg/kg - milligrams per kilogram (dry weight) or parts per million (ppm).

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Summary of Analytical Results for On-Site Soil Investigation -- 1997 through 2012
Kiley Barrel
Somerville, Massachusetts

Analysis	Analyte					Sample ID:	O08	O09		P08		P09		P10		PILE-1	PILE-2
						Sample Depth (ft.):	0-0.5	1-2	0-0.5	1-2	0-0.5	1-2	0-0.5	1-2	0-0.5	1-2	0-0.5	0-0.5
						Sample Date:	09/15/11	09/15/11	09/14/11	09/14/11	09/15/11	09/15/11	09/15/11	09/15/11	09/15/11	09/15/11	8/7/2008	8/7/2008
		S-1/GW-2	S-1/GW-3	UCLs*	TSCA													
PCBs																		
(mg/kg)	Aroclor 1016	1	1	100	1		0.54 U	0.11 U	0.43 U	0.11 U	0.12 U	0.12 U	0.11 U	0.11 U	0.11 U	0.11 U	5.96 U	2.22 U
	Aroclor 1221	1	1	100	1		0.54 U	0.11 U	0.43 U	0.11 U	0.12 U	0.12 U	0.11 U	0.11 U	0.11 U	0.11 U	5.96 U	2.22 U
	Aroclor 1232	1	1	100	1		0.54 U	0.11 U	0.43 U	0.11 U	0.12 U	0.12 U	0.11 U	0.11 U	0.11 U	0.11 U	5.96 U	2.22 U
	Aroclor 1242	1	1	100	1		0.54 U	0.11 U	0.43 U	0.11 U	0.12 U	0.12 U	0.11 U	0.11 U	0.11 U	0.11 U	5.96 U	2.22 U
	Aroclor 1248	1	1	100	1		**1.5**	0.11 U	0.43 U	0.11 U	0.12 U	0.12 U	0.11 U	0.11 U	0.11 U	0.11 U	5.96 U	2.22 U
	Aroclor 1254	1	1	100	1		**4.9**	**0.17**	**2.5**	0.11 U	**0.93**	**0.31**	**1.0**	0.11 U	**0.78**	0.11 U	**35.8**	**11.5**
	Aroclor 1260	1	1	100	1		0.54 U	0.11 U	0.43 U	0.11 U	0.12 U	0.12 U	0.11 U	0.11 U	0.11 U	0.11 U	5.96 U	2.22 U
	Aroclor 1262	1	1	100	1		0.54 U	0.11 U	0.43 U	0.11 U	0.12 U	0.12 U	0.11 U	0.11 U	0.11 U	0.11 U	5.96 U	2.22 U
	Aroclor 1268	1	1	100	1		0.54 U	0.11 U	0.43 U	0.11 U	0.12 U	0.12 U	0.11 U	0.11 U	0.11 U	0.11 U	5.96 U	2.22 U
	Total PCBs	1	1	100	1		**6.4**	**0.17**	2.5	0.11 U	**0.93**	**0.31**	**1.0**	0.11 U	**0.78**	0.11 U	**35.8**	**11.5**

Notes:

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Summary of Analytical Results for On-Site Soil Investigation -- 1997 through 2012
Kiley Barrel
Somerville, Massachusetts

Analysis	Analyte	S-1/GW-2	S-1/GW-3	UCLs*	TSCA	Sample ID:	TP-103	TP-104	TP-105	TP-106	TP-107	TP-109	TP-112	Bennet-S-1			Bennet-S-2		Bennet-S-3	
						Sample Depth (ft.):	1-2	0.5-2	1-2	0-3	0-2	1-3	0-3	0.1-0.5	1-3	1-3	0-0.5	1-3	0-0.5	1-3
						Sample Date:	2/12/2002	2/12/2002	2/12/2002	2/12/2002	2/12/2002	2/12/2002	2/12/2002	5/1/2009	5/1/2009	5/1/2009	5/1/2009	5/1/2009	5/1/2009	5/1/2009
														(b)		Field Dup				
PCBs																				
(mg/kg)	Aroclor 1016	1	1	100	1		4.5 U	0.2 U	0.025 U	2.5 U	7.5 U	5 U	0.1 U	0.43 U	0.45 U	0.46 U	2.1 U	0.46 U	0.44 U	0.47 U
	Aroclor 1221	1	1	100	1		4.5 U	0.2 U	0.025 U	2.5 U	7.5 U	5 U	0.1 U	0.43 U	0.45 U	0.46 U	2.1 U	0.46 U	0.44 U	0.47 U
	Aroclor 1232	1	1	100	1		4.5 U	0.2 U	0.025 U	2.5 U	7.5 U	5 U	0.1 U	0.43 U	0.45 U	0.46 U	2.1 U	0.46 U	0.44 U	0.47 U
	Aroclor 1242	1	1	100	1		4.5 U	0.2 U	0.025 U	2.5 U	7.5 U	5 U	0.1 U	0.43 U	0.45 U	0.46 U	2.1 U	0.46 U	0.44 U	0.47 U
	Aroclor 1248	1	1	100	1		4.5 U	0.2 U	0.025 U	2.5 U	7.5 U	5 U	0.1 U	0.43 U	0.45 U	0.46 U	2.1 U	0.46 U	0.44 U	0.47 U
	Aroclor 1254	1	1	100	1		**8.2**	**0.46**	**0.025**	**2.8**	**19**	**9.5**	**0.16**	0.43 U	0.45 U	0.46 U	**8.4**	0.46 U	0.44 U	0.47 U
	Aroclor 1260	1	1	100	1		**4.6**	**0.2**	0.025 U	2.5 U	7.5 U	5 U	**0.11**	0.43 U	0.45 U	0.46 U	2.1 U	0.46 U	**1.2**	0.47 U
	Aroclor 1262	1	1	100	1		4.5 U	0.2 U	0.025 U	2.5 U	7.5 U	5 U	0.1 U	0.43 U	0.45 U	0.46 U	2.1 U	0.46 U	0.44 U	0.47 U
	Aroclor 1268	1	1	100	1		NA	NA	NA	NA	NA	NA	NA	0.43 U	0.45 U	0.46 U	2.1 U	0.46 U	0.44 U	0.47 U
	Total PCBs	1	1	100	1		**12.8**	**0.66**	**0.025**	**2.8**	**19**	**9.5**	**0.27**	0.43 U	0.45 U	0.46 U	**8.4**	0.46 U	**1.2**	0.47 U

Notes:

mg/kg - milligrams per kilogram (dry weight) or parts per million (ppm).

J - Estimated value.

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Summary of Analytical Results for On-Site Soil Investigation -- 1997 through 2012
Kiley Barrel
Somerville, Massachusetts

Analysis	Analyte					Sample ID:	8 BENNET-S-1		8 BENNET-S-2	8 BENNET-S-3		8 BENNET-S-4		8 BENNET-S-5	14 BENNET-S-1		14 BENNET-S-2		14 BENNET-S-3	
						Sample Depth (ft.):	0-0.5	1-3	5-7/5	0-0.5	1-3	0-0.5	1-3	8-10/9	0-0.5	1-3	0-0.5	1-3	0-0.5	1-3
						Sample Date:	3/2/2010	3/2/2010	3/4/2010	3/2/2010	3/2/2010	3/2/2010	3/2/2010	3/4/2010	3/3/2010	3/3/2010	3/3/2010	3/3/2010	3/3/2010	3/3/2010
		S-1/GW-2	S-1/GW-3	UCLs*	TSCA															
PCBs																				
(mg/kg)	Aroclor 1016	1	1	100	1		1.91 U	2.01 U	0.0381 U	0.386 U	0.0388 U	0.743 U	0.0436 U	0.0427 U	0.787 U	0.739 U	0.0398 U	4.07 U	0.0372 U	4.24 U
	Aroclor 1221	1	1	100	1		1.91 U	2.01 U	0.0381 U	0.386 U	0.0388 U	0.743 U	0.0436 U	0.0427 U	0.787 U	0.739 U	0.0398 U	4.07 U	0.0372 U	4.24 U
	Aroclor 1232	1	1	100	1		1.91 U	2.01 U	0.0381 U	0.386 U	0.0388 U	0.743 U	0.0436 U	0.0427 U	0.787 U	0.739 U	0.0398 U	4.07 U	0.0372 U	4.24 U
	Aroclor 1242	1	1	100	1		1.91 U	**11.9**	0.0381 U	0.386 U	0.0388 U	0.743 U	0.0436 U	0.0427 U	0.787 U	0.739 U	0.0398 U	4.07 U	0.0372 U	4.24 U
	Aroclor 1248	1	1	100	1		1.91 U	2.01 U	0.0381 U	0.386 U	0.0388 U	0.743 U	0.0436 U	0.0427 U	0.787 U	0.739 U	0.0398 U	4.07 U	0.0372 U	4.24 U
	Aroclor 1254	1	1	100	1		**10.1**	**5.77**	0.0381 U	**4.82**	0.0388 U	**9.11**	**0.0975**	0.0427 U	**5.12**	**4.65**	**0.0725**	**27.2**	**0.188**	**8.63**
	Aroclor 1260	1	1	100	1		1.91 U	2.01 U	0.0381 U	0.386 U	0.0388 U	0.743 U	0.0436 U	0.0427 U	0.787 U	**0.958**	0.0398 U	4.07 U	0.0372 U	4.24 U
	Aroclor 1262	1	1	100	1		1.91 U	2.01 U	0.0381 U	0.386 U	0.0388 U	0.743 U	0.0436 U	0.0427 U	0.787 U	0.739 U	0.0398 U	4.07 U	0.0372 U	4.24 U
	Aroclor 1268	1	1	100	1		1.91 U	2.01 U	0.0381 U	0.386 U	0.0388 U	0.743 U	0.0436 U	0.0427 U	0.787 U	0.739 U	0.0398 U	4.07 U	0.0372 U	4.24 U
	Total PCBs	1	1	100	1		**10.1**	**17.67**	0.0381 U	**4.82**	0.0388 U	**9.11**	**0.0975**	0.0427 U	**5.12**	**5.608**	**0.0725**	**27.2**	**0.188**	**8.63**

Notes:

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Summary of Analytical Results for On-Site Soil Investigation -- 1997 through 2012
Kiley Barrel
Somerville, Massachusetts

Analysis	Analyte					Sample ID:	14 BENNET-S-4	4 BENNET-S-	14 BENNET-S-6			4 BENNET-S-	14 BENNET-S-8		14 BENNET-S-9		14 BENNET-S-10		14 BENNET-S-11
						Sample Depth (ft.):	4-6/6	6-8/7	0-0.5	1-3	1-3	4-6/5	0-0.5	1-3	4-6/6	4-6/6	0-0.5	1-3	6-8/7
						Sample Date:	3/4/2010	3/4/2010	3/3/2010	3/3/2010	3/3/2010	3/4/2010	3/3/2010	3/3/2010	3/4/2010	3/4/2010	3/3/2010	3/3/2010	3/4/2010
		S-1/GW-2	S-1/GW-3	UCLs*	TSCA						Field Dup					Field Dup			
PCBs																			
(mg/kg)	Aroclor 1016	1	1	100	1		0.0426 U	8.27 U	0.374 U	0.216 U	0.0433 U	0.0412 U	0.0373 U	4.38 U	0.208 U	0.849 U	0.0378 U	0.356 U	0.0432 U
	Aroclor 1221	1	1	100	1		0.0426 U	8.27 U	0.374 U	0.216 U	0.0433 U	0.0412 U	0.0373 U	4.38 U	0.208 U	0.849 U	0.0378 U	0.356 U	0.0432 U
	Aroclor 1232	1	1	100	1		0.0426 U	8.27 U	0.374 U	0.216 U	0.0433 U	0.0412 U	0.0373 U	4.38 U	0.208 U	0.849 U	0.0378 U	0.356 U	0.0432 U
	Aroclor 1242	1	1	100	1		0.0426 U	8.27 U	0.374 U	0.216 U	0.0433 U	0.0412 U	0.0373 U	4.38 U	0.208 U	0.849 U	0.0378 U	0.356 U	0.0432 U
	Aroclor 1248	1	1	100	1		0.0426 U	8.27 U	0.374 U	0.216 U	0.0433 U	0.0412 U	0.0373 U	4.38 U	0.208 U	0.849 U	0.0378 U	0.356 U	0.0432 U
	Aroclor 1254	1	1	100	1		**0.0518**	**49.7**	**1.49**	**1.14**	**0.357**	**0.645**	**0.279**	**9.26**	**1.13**	**5.22**	0.0378 U	**1.09**	**0.0811**
	Aroclor 1260	1	1	100	1		0.0426 U	8.27 U	0.374 U	**0.238**	0.0433 U	0.0412 U	0.0373 U	4.38 U	0.208 U	0.849 U	0.0378 U	0.356 U	0.0432 U
	Aroclor 1262	1	1	100	1		0.0426 U	8.27 U	0.374 U	0.216 U	0.0433 U	0.0412 U	0.0373 U	4.38 U	0.208 U	0.849 U	0.0378 U	0.356 U	0.0432 U
	Aroclor 1268	1	1	100	1		0.0426 U	8.27 U	0.374 U	0.216 U	0.0433 U	0.0412 U	0.0373 U	4.38 U	0.208 U	0.849 U	0.0378 U	0.356 U	0.0432 U
	Total PCBs	1	1	100	1		**0.0518**	**49.7**	**1.49**	**1.378**	**0.357**	**0.645**	**0.279**	**9.26**	**1.13**	**5.22**	0.0378 U	**1.09**	**0.0811**

Notes:

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Kiley Barrel
Somerville, Massachusetts

Analysis	Analyte					Sample ID:	14 BENNET-S-12	14 BENNET-S-13			14 BENNET-S-14	16 BENNET-S-1		16 BENNET-S-2		16 BENNET-S-3		16 BENNET-S-4		
						Sample Depth (ft.):	8-10	14-16	14-16	16-18	7-9	0-0.5	1-3	0-0.5	1-3	0-0.5/0.5	1-3	0-0.5	1-3	1-3
						Sample Date:	4/26/2010	4/26/2010	4/26/2010	4/26/2010	4/26/2010	3/2/2010	3/2/2010	3/2/2010	3/2/2010	3/2/2010	3/2/2010	3/2/2010	3/2/2010	3/2/2010
		S-1/GW-2	S-1/GW-3	UCLs*	TSCA		(a)		Field Dup											Field Dup
PCBs																				
(mg/kg)	Aroclor 1016	1	1	100	1		0.0358 U	0.0351 U	0.976 U	0.0382 U	0.0573 U	0.191 U	0.0595 U	2.03 U	0.219 U	0.370 U	0.0415 U	2.18 U	2.32 U	2.26 U
	Aroclor 1221	1	1	100	1		0.0358 U	0.0351 U	0.976 U	0.0382 U	0.0573 U	0.191 U	0.0595 U	2.03 U	0.219 U	0.370 U	0.0415 U	2.18 U	2.32 U	2.26 U
	Aroclor 1232	1	1	100	1		0.0358 U	0.0351 U	0.976 U	0.0382 U	0.0573 U	0.191 U	0.0595 U	2.03 U	0.219 U	0.370 U	0.0415 U	2.18 U	2.32 U	2.26 U
	Aroclor 1242	1	1	100	1		0.0358 U	0.0351 U	0.976 U	0.0382 U	0.0573 U	0.191 U	0.0595 U	2.03 U	0.219 U	0.370 U	0.0415 U	2.18 U	2.32 U	2.26 U
	Aroclor 1248	1	1	100	1		0.0358 U	0.0351 U	0.976 U	0.0382 U	0.0573 U	0.191 U	0.0595 U	2.03 U	0.219 U	0.370 U	0.0415 U	2.18 U	2.32 U	2.26 U
	Aroclor 1254	1	1	100	1		**0.0373**	**0.15**	**3.8**	**0.185**	0.0573 U	**1.87**	0.0595 U	**11.7**	**1.42**	**1.51**	**0.221**	**13.4**	**11.2**	**13.5**
	Aroclor 1260	1	1	100	1		0.0358 U	0.0351 U	0.976 U	0.0382 U	0.0573 U	0.191 U	0.0595 U	2.03 U	0.219 U	0.370 U	0.0415 U	2.18 U	2.32 U	2.26 U
	Aroclor 1262	1	1	100	1		0.0358 U	0.0351 U	0.976 U	0.0382 U	0.0573 U	0.191 U	0.0595 U	2.03 U	0.219 U	0.370 U	0.0415 U	2.18 U	2.32 U	2.26 U
	Aroclor 1268	1	1	100	1		0.0358 U	0.0351 U	0.976 U	0.0382 U	0.0573 U	0.191 U	0.0595 U	2.03 U	0.219 U	0.370 U	0.0415 U	2.18 U	2.32 U	2.26 U
	Total PCBs	1	1	100	1		**0.0373**	**0.15**	**3.8**	**0.185**	0.0573 U	**1.87**	0.0595 U	**11.7**	**1.42**	**1.51**	**0.221**	**13.4**	**11.2**	**13.5**

Notes:

mg/kg - milligrams per kilogram (dry weight) or parts per million (ppm).

J - Estimated value.

U - Compound was not detected at specified quantitation limit.

Values in **Bold** indicate the compound was detected.

Values shown in Bold and shaded type exceed one or more of the listed MassDEP Method 1 standards.

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UCLs - Upper concentration limits.

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Summary of Analytical Results for On-Site Soil Investigation -- 1997 through 2012
Kiley Barrel
Somerville, Massachusetts

Analysis	Analyte					Sample ID:												
						16 BENNET-S-5		16 BENNET-S-6		16 BENNET-S-7	9 MILK-S-1		9 MILK-S-2		9 MILK-S-3	10 MILK-S-1	10 MILK-S-2	10 MILK-S-3	
						Sample Depth (ft.):	0-0.5	1-3	0-0.5	1-3	6-8	0-0.5	1-3	0-0.5	1-3	8-10/8	8-10/9	5-7/5	0-0.5	1-3
						Sample Date:	3/2/2010	3/2/2010	3/2/2010	3/2/2010	4/26/2010	3/2/2010	3/2/2010	3/2/2010	3/2/2010	3/4/2010	3/4/2010	3/4/2010	3/2/2010	3/2/2010
		S-1/GW-2	S-1/GW-3	UCLs*	TSCA														
PCBs																			
(mg/kg)	Aroclor 1016	1	1	100	1	0.194 U	0.0430 U	0.396 U	0.0396 U	0.0628 U	0.0382 U	0.0448 U	0.0393 U	0.0389 U	0.0524 U	0.0611 U	0.0407 U	0.0423 U	0.0419 U
	Aroclor 1221	1	1	100	1	0.194 U	0.0430 U	0.396 U	0.0396 U	0.0628 U	0.0382 U	0.0448 U	0.0393 U	0.0389 U	0.0524 U	0.0611 U	0.0407 U	0.0423 U	0.0419 U
	Aroclor 1232	1	1	100	1	0.194 U	0.0430 U	0.396 U	0.0396 U	0.0628 U	0.0382 U	0.0448 U	0.0393 U	0.0389 U	0.0524 U	0.0611 U	0.0407 U	0.0423 U	0.0419 U
	Aroclor 1242	1	1	100	1	0.194 U	0.0430 U	0.396 U	0.0396 U	0.0628 U	0.0382 U	0.0448 U	0.0393 U	0.0389 U	0.0524 U	0.0611 U	0.0407 U	0.0423 U	0.0419 U
	Aroclor 1248	1	1	100	1	0.194 U	0.0430 U	0.396 U	0.0396 U	0.0628 U	0.0382 U	0.0448 U	0.0393 U	0.0389 U	0.0524 U	0.0611 U	0.0407 U	0.0423 U	0.0419 U
	Aroclor 1254	1	1	100	1	**1.87**	**0.207**	5.23	**0.153**	0.0628 U	**0.451**	0.0448 U	**0.434**	**0.0564**	0.0524 U	0.0611 U	0.0407 U	**0.316**	0.0419 U
	Aroclor 1260	1	1	100	1	0.194 U	**0.0967**	0.396 U	0.0396 U	0.0628 U	**0.265**	0.0448 U	0.0393 U	0.0389 U	0.0524 U	0.0611 U	0.0407 U	**0.0948**	0.0419 U
	Aroclor 1262	1	1	100	1	0.194 U	0.0430 U	0.396 U	0.0396 U	0.0628 U	0.0382 U	0.0448 U	0.0393 U	0.0389 U	0.0524 U	0.0611 U	0.0407 U	0.0423 U	0.0419 U
	Aroclor 1268	1	1	100	1	0.194 U	0.0430 U	0.396 U	0.0396 U	0.0628 U	0.0382 U	0.0448 U	0.0393 U	0.0389 U	0.0524 U	0.0611 U	0.0407 U	0.0423 U	0.0419 U
	Total PCBs	1	1	100	1	**1.87**	**0.3037**	5.23	**0.153**	0.0628 U	**0.716**	0.0448 U	**0.434**	**0.0564**	0.0524 U	0.0611 U	0.0407 U	**0.4108**	0.0419 U

Notes:

mg/kg - milligrams per kilogram (dry weight) or parts per million (ppm).

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Summary of Analytical Results for On-Site Soil Investigation -- 1997 through 2012
Kiley Barrel
Somerville, Massachusetts

Analysis	Analyte					Sample ID:	10 MILK-S-4	20 PROSPECT-S-1		20 PROSPECT-S-2		20 PROSPECT-S-3		20 PROSPECT-S-4		20 PROSPECT-S-5		20PRO-S-5-1	
						Sample Depth (ft.):	0-0.5	1-3	0-0.5	1-3	0-0.5	1-3	0-0.5	1-3	0-0.5	1-3	0-0.5	1-3	0-0.5	1-2
						Sample Date:	3/3/2010	3/3/2010	3/2/2010	3/2/2010	3/2/2010	3/2/2010	3/2/2010	3/2/2010	3/2/2010	3/2/2010	3/2/2010	3/2/2010	09/15/11	09/15/11
		S-1/GW-2	S-1/GW-3	UCLs*	TSCA														
PCBs																			
(mg/kg)	Aroclor 1016	1	1	100	1		0.189 U	0.442 U	0.0411 U	0.0400 U	0.0386 U	0.0422 U	0.207 U	0.0487 U	0.0431 U	0.814 U	9.34 U	0.0417 U	1.1 U	0.61 U
	Aroclor 1221	1	1	100	1		0.189 U	0.442 U	0.0411 U	0.0400 U	0.0386 U	0.0422 U	0.207 U	0.0487 U	0.0431 U	0.814 U	9.34 U	0.0417 U	1.1 U	0.61 U
	Aroclor 1232	1	1	100	1		0.189 U	0.442 U	0.0411 U	0.0400 U	0.0386 U	0.0422 U	0.207 U	0.0487 U	0.0431 U	0.814 U	9.34 U	0.0417 U	1.1 U	0.61 U
	Aroclor 1242	1	1	100	1		0.189 U	0.442 U	0.0411 U	0.0400 U	0.0386 U	0.0422 U	0.207 U	0.0487 U	0.0431 U	0.814 U	**43.4**	0.0417 U	1.1 U	0.61 U
	Aroclor 1248	1	1	100	1		0.189 U	0.442 U	0.0411 U	0.0400 U	0.0386 U	0.0422 U	0.207 U	0.0487 U	0.0431 U	0.814 U	9.34 U	**0.227**	1.1 U	0.61 U
	Aroclor 1254	1	1	100	1		**0.531**	**4.56**	0.0411 U	**0.231**	**0.304**	**0.353**	**0.885**	**0.181**	**0.0875**	**4.24**	**17.5**	**0.256**	**14**	**4.7**
	Aroclor 1260	1	1	100	1		0.189 U	0.442 U	0.0411 U	0.0400 U	0.0386 U	0.0422 U	0.207 U	0.0487 U	0.0431 U	0.814 U	9.34 U	0.0417 U	1.1 U	0.61 U
	Aroclor 1262	1	1	100	1		0.189 U	0.442 U	0.0411 U	0.0400 U	0.0386 U	0.0422 U	0.207 U	0.0487 U	0.0431 U	0.814 U	9.34 U	0.0417 U	1.1 U	0.61 U
	Aroclor 1268	1	1	100	1		0.189 U	0.442 U	0.0411 U	0.0400 U	0.0386 U	0.0422 U	**0.806**	**0.234**	0.0431 U	0.814 U	9.34 U	0.0417 U	1.1 U	0.61 U
	Total PCBs	1	1	100	1		**0.531**	**4.56**	0.0411 U	**0.231**	**0.304**	**0.353**	**1.691**	**0.415**	**0.0875**	**4.24**	**60.9**	**0.483**	**14**	**4.7**

Notes:

mg/kg - milligrams per kilogram (dry weight) or parts per million (ppm).

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Summary of Analytical Results for On-Site Soil Investigation -- 1997 through 2012
Kiley Barrel
Somerville, Massachusetts

Analysis	Analyte					Sample ID:	20PRO-S-5-1 (cont)		20PRO-S-5-2		20PRO-S-5-3						
						Sample Depth (ft.):	2-3	3-5	5-7	0-0.5	1-2	0-0.5	1-2	2-3	3-5	5-7	7-9	9-11	13-15
						Sample Date:	09/15/11	09/15/11	09/15/11	09/15/11	09/15/11	09/15/11	09/15/11	09/15/11	09/15/11	09/15/11	09/15/11	09/15/11	09/15/11
		S-1/GW-2	S-1/GW-3	UCLs*	TSCA														
PCBs																			
(mg/kg)	Aroclor 1016	1	1	100	1		0.11 U	0.27 U	0.13 U	0.44 U	0.13 U	6.2 U	0.57 U	11 U	2.3 U	0.12 U	0.15 U	0.21 U	0.12 U
	Aroclor 1221	1	1	100	1		0.11 U	0.27 U	0.13 U	0.44 U	0.13 U	6.2 U	0.57 U	11 U	2.3 U	0.12 U	0.15 U	0.21 U	0.12 U
	Aroclor 1232	1	1	100	1		0.11 U	0.27 U	0.13 U	0.44 U	0.13 U	6.2 U	0.57 U	11 U	2.3 U	0.12 U	0.15 U	0.21 U	0.12 U
	Aroclor 1242	1	1	100	1		0.11 U	0.27 U	0.13 U	0.44 U	0.13 U	6.2 U	0.57 U	11 U	2.3 U	0.12 U	0.15 U	0.21 U	0.12 U
	Aroclor 1248	1	1	100	1		0.11 U	0.27 U	0.13 U	0.44 U	**1.4**	6.2 U	0.57 U	11 U	2.3 U	0.12 U	0.15 U	0.21 U	0.12 U
	Aroclor 1254	1	1	100	1		0.11 U	**2.9**	0.13 U	**2.2**	**1.6**	**16**	**5.9**	**60**	**14**	**1.3**	0.15 U	0.21 U	0.12 U
	Aroclor 1260	1	1	100	1		0.11 U	0.27 U	0.13 U	0.44 U	0.13 U	6.2 U	0.57 U	11 U	2.3 U	0.12 U	0.15 U	0.21 U	0.12 U
	Aroclor 1262	1	1	100	1		0.11 U	0.27 U	0.13 U	0.44 U	0.13 U	6.2 U	0.57 U	11 U	2.3 U	0.12 U	0.15 U	0.21 U	0.12 U
	Aroclor 1268	1	1	100	1		0.11 U	0.27 U	0.13 U	0.44 U	0.13 U	6.2 U	0.57 U	11 U	2.3 U	0.12 U	0.15 U	0.21 U	0.12 U
	Total PCBs	1	1	100	1		0.11 U	**2.9**	0.13 U	**2.2**	**3.0**	**16**	**5.9**	**60**	**14**	**1.3**	0.15 U	0.21 U	0.12 U

Notes:

mg/kg - milligrams per kilogram (dry weight) or parts per million (ppm).

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PCBs - Polychlorinated Biphenyls.

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Summary of Analytical Results for On-Site Soil Investigation -- 1997 through 2012
Kiley Barrel
Somerville, Massachusetts

Analysis	Analyte					Sample ID:	20PRO-S-5-4					20PRO-S-5-5						
						Sample Depth (ft.):	0-0.5/0.5	1-2	2-3	3-5	5-7	13-15	0-0.5	1-2	2-3	3-5	5-7	7-9	13-15
						Sample Date:	09/16/11	09/16/11	09/16/11	09/16/11	09/16/11	09/16/11	09/16/11	09/16/11	09/16/11	09/16/11	09/16/11	09/16/11	09/16/11
		S-1/GW-2	S-1/GW-3	UCLs*	TSCA														
PCBs																			
(mg/kg)	Aroclor 1016	1	1	100	1		0.53 U	5.7 U	0.56 U	0.12 U	0.12 U	0.12 U	5.2 U	4.3 U	0.12 U	0.59 U	0.12 U	0.21 U	0.12 U
	Aroclor 1221	1	1	100	1		0.53 U	5.7 U	0.56 U	0.12 U	0.12 U	0.12 U	5.2 U	4.3 U	0.12 U	0.59 U	0.12 U	0.21 U	0.12 U
	Aroclor 1232	1	1	100	1		0.53 U	5.7 U	0.56 U	0.12 U	0.12 U	0.12 U	5.2 U	4.3 U	0.12 U	0.59 U	0.12 U	0.21 U	0.12 U
	Aroclor 1242	1	1	100	1		0.53 U	5.7 U	0.56 U	0.12 U	0.12 U	0.12 U	5.2 U	4.3 U	0.12 U	0.59 U	0.12 U	0.21 U	0.12 U
	Aroclor 1248	1	1	100	1		**1.8**	**23**	0.56 U	0.12 U	**0.23**	0.12 U	**39**	**25**	0.12 U	**3.1**	0.12 U	0.21 U	0.12 U
	Aroclor 1254	1	1	100	1		**4.8**	**55**	**5.1**	0.12 U	**0.33**	0.12 U	**21**	**13**	**0.24**	**1.5**	0.12 U	0.21 U	0.12 U
	Aroclor 1260	1	1	100	1		0.53 U	5.7 U	0.56 U	0.12 U	0.12 U	0.12 U	5.2 U	4.3 U	0.12 U	0.59 U	0.12 U	0.21 U	0.12 U
	Aroclor 1262	1	1	100	1		0.53 U	5.7 U	0.56 U	0.12 U	0.12 U	0.12 U	5.2 U	4.3 U	0.12 U	0.59 U	0.12 U	0.21 U	0.12 U
	Aroclor 1268	1	1	100	1		0.53 U	5.7 U	0.56 U	0.12 U	0.12 U	0.12 U	5.2 U	4.3 U	0.12 U	0.59 U	0.12 U	0.21 U	0.12 U
	Total PCBs	1	1	100	1		**6.6**	**78**	**5.1**	0.12 U	**0.56**	0.12 U	**60**	**38**	**0.24**	**4.6**	0.12 U	0.21 U	0.12 U

Notes:

mg/kg - milligrams per kilogram (dry weight) or parts per million (ppm).

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Summary of Analytical Results for On-Site Soil Investigation -- 1997 through 2012
Kiley Barrel
Somerville, Massachusetts

Analysis	Analyte					Sample ID:	20PRO-S-5-6							20PRO-S-5-7			20PRO-S-5-8		
						Sample Depth (ft.):	0-0.5	1-2	2-3	3-5	5-7	7-9	9-11	13-15	0-0.5	1-2	1-2	0-0.5	1-2/1	1-2
						Sample Date:	09/16/11	09/16/11	09/16/11	09/16/11	09/16/11	09/16/11	09/16/11	09/16/11	09/16/11	09/16/11	09/16/11 Field Dup	09/16/11	09/16/11	09/16/11 Field Dup
		S-1/GW-2	S-1/GW-3	UCLs*	TSCA															
PCBs																				
(mg/kg)	Aroclor 1016	1	1	100	1		45 U	22 U	5.9 U	2.4 U	1.3 U	0.19 U	0.15 U	0.13 U	0.41 U	0.44 U	0.11 U	51 U	0.12 U	0.12 U
	Aroclor 1221	1	1	100	1		45 U	22 U	5.9 U	2.4 U	1.3 U	0.19 U	0.15 U	0.13 U	0.41 U	0.44 U	0.11 U	51 U	0.12 U	0.12 U
	Aroclor 1232	1	1	100	1		45 U	22 U	5.9 U	2.4 U	1.3 U	0.19 U	0.15 U	0.13 U	0.41 U	0.44 U	0.11 U	51 U	0.12 U	0.12 U
	Aroclor 1242	1	1	100	1		45 U	22 U	5.9 U	2.4 U	1.3 U	0.19 U	0.15 U	0.13 U	0.41 U	0.44 U	0.11 U	51 U	0.12 U	0.12 U
	Aroclor 1248	1	1	100	1		45 U	22 U	**15**	**16**	**3.9**	0.19 U	**0.18**	0.13 U	0.41 U	0.44 U	**0.25**	**370**	**0.42**	**0.26**
	Aroclor 1254	1	1	100	1		**390**	**160**	**32**	**20**	**6.7**	0.19 U	**0.26**	0.13 U	**3.0**	**2.7**	**0.82**	**390**	**0.49**	**0.28**
	Aroclor 1260	1	1	100	1		45 U	22 U	5.9 U	2.4 U	1.3 U	0.19 U	0.15 U	0.13 U	0.41 U	0.44 U	0.11 U	51 U	0.12 U	0.12 U
	Aroclor 1262	1	1	100	1		45 U	22 U	5.9 U	2.4 U	1.3 U	0.19 U	0.15 U	0.13 U	0.41 U	0.44 U	0.11 U	51 U	0.12 U	0.12 U
	Aroclor 1268	1	1	100	1		45 U	22 U	5.9 U	2.4 U	1.3 U	0.19 U	0.15 U	0.13 U	0.41 U	0.44 U	0.11 U	51 U	0.12 U	0.12 U
	Total PCBs	1	1	100	1		**390**	**160**	**47**	**36**	**10.6**	0.19 U	**0.44**	0.13 U	**3.0**	**2.7**	**1.07**	**760**	**0.91**	**0.54**

Notes:

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PCBs - Polychlorinated Biphenyls.

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Summary of Analytical Results for On-Site Soil Investigation -- 1997 through 2012
Kiley Barrel
Somerville, Massachusetts

Analysis	Analyte	Sample ID:				20PRO-S-5-8 (cont)						20PRO-S-5-9								
		Sample Depth (ft.):				2-3	3-5	5-7	7-9	9-11	11-13	0-0.5	1-2/1	2-3	3-5	5-7	7-9	9-11	11-13	13-15
		Sample Date:				09/16/11	09/16/11	09/16/11	09/16/11	09/16/11	09/16/11	09/16/11	09/16/11	09/16/11	09/16/11	09/16/11	09/16/11	09/16/11	09/16/11	09/16/11
		S-1/GW-2	S-1/GW-3	UCLs*	TSCA															
PCBs																				
(mg/kg)	Aroclor 1016	1	1	100	1	0.14 U	0.13 U	0.14 U	0.23 U	0.16 U	0.13 U	42 U	12 U	0.47 U	0.50 U	6.9 U	0.12 U	0.14 U	0.12 U	0.12 U
	Aroclor 1221	1	1	100	1	0.14 U	0.13 U	0.14 U	0.23 U	0.16 U	0.13 U	42 U	12 U	0.47 U	0.50 U	6.9 U	0.12 U	0.14 U	0.12 U	0.12 U
	Aroclor 1232	1	1	100	1	0.14 U	0.13 U	0.14 U	0.23 U	0.16 U	0.13 U	42 U	12 U	0.47 U	0.50 U	6.9 U	0.12 U	0.14 U	0.12 U	0.12 U
	Aroclor 1242	1	1	100	1	0.14 U	0.13 U	0.14 U	0.23 U	0.16 U	0.13 U	42 U	12 U	0.47 U	0.50 U	6.9 U	0.12 U	0.14 U	0.12 U	0.12 U
	Aroclor 1248	1	1	100	1	**0.56**	0.13 U	**0.34**	0.23 U	0.16 U	0.13 U	**370**	**130**	**4.8**	**3.2**	**80**	**0.20**	**0.75**	0.12 U	**0.84**
	Aroclor 1254	1	1	100	1	**0.66**	0.13 U	**0.50**	0.23 U	0.16 U	0.13 U	**140**	**98**	**3.3**	**1.9**	**61**	0.12 U	0.14 U	0.12 U	**0.55**
	Aroclor 1260	1	1	100	1	0.14 U	0.13 U	0.14 U	0.23 U	0.16 U	0.13 U	42 U	12 U	0.47 U	0.50 U	6.9 U	0.12 U	0.14 U	0.12 U	0.12 U
	Aroclor 1262	1	1	100	1	0.14 U	0.13 U	0.14 U	0.23 U	0.16 U	0.13 U	42 U	12 U	0.47 U	0.50 U	6.9 U	0.12 U	0.14 U	0.12 U	0.12 U
	Aroclor 1268	1	1	100	1	0.14 U	0.13 U	0.14 U	0.23 U	0.16 U	0.13 U	42 U	12 U	0.47 U	0.50 U	6.9 U	0.12 U	0.14 U	0.12 U	0.12 U
	Total PCBs	1	1	100	1	**1.22**	0.13 U	**0.84**	0.23 U	0.16 U	0.13 U	**510**	**228**	**8.1**	**5.1**	**141**	**0.20**	**0.75**	0.12 U	**1.39**

Notes:

mg/kg - milligrams per kilogram (dry weight) or parts per million (ppm).

J - Estimated value.

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Values shown in Bold and shaded type exceed one or more of the listed MassDEP Method 1 standards.

PCBs - Polychlorinated Biphenyls.

TSCA - Toxic Substances Control Act criteria.

UCLs - Upper concentration limits.

* - For reference purposes only.

Summary of Analytical Results for On-Site Soil Investigation -- 1997 through 2012
Kiley Barrel
Somerville, Massachusetts

Analysis	Analyte	Sample ID:				TSCA-CMW-9-1			TSCA-CMW-9-2			TSCA-CMW-9-3				TSCA-CMW-9-4			TSCA-CMW-9-5	
		Sample Depth (ft.):				0-0.5	1-1.5	2-2.5	0-0.5	1-1.5	2-2.5	0-0.5	1-1.5	1-1.5	2-2.5	0-0.5	1-1.5	2-2.5	0-0.5	1-1.5
		Sample Date:				3/3/2010	3/3/2010	3/3/2010	3/3/2010	3/3/2010	3/3/2010	3/3/2010	3/3/2010	3/3/2010	3/3/2010	3/3/2010	3/3/2010	3/3/2010	3/3/2010	3/3/2010
		S-1/GW-2	S-1/GW-3	UCLs*	TSCA									Field Dup						
PCBs																				
(mg/kg)	Aroclor 1016	1	1	100	1	0.783 U	0.435 U	0.0510 U	0.0390 U	2.05 U	0.0418 U	0.0356 U	2.99 U	2.94 U	0.854 U	0.748 U	0.0386 U	0.0395 U	0.157 U	0.0354 U
	Aroclor 1221	1	1	100	1	0.783 U	0.435 U	0.0510 U	0.0390 U	2.05 U	0.0418 U	0.0356 U	2.99 U	2.94 U	0.854 U	0.748 U	0.0386 U	0.0395 U	0.157 U	0.0354 U
	Aroclor 1232	1	1	100	1	0.783 U	0.435 U	0.0510 U	0.0390 U	2.05 U	0.0418 U	0.0356 U	2.99 U	2.94 U	0.854 U	0.748 U	0.0386 U	0.0395 U	0.157 U	0.0354 U
	Aroclor 1242	1	1	100	1	0.783 U	0.435 U	0.0510 U	0.0390 U	2.05 U	0.0418 U	0.0356 U	2.99 U	2.94 U	0.854 U	0.748 U	0.0386 U	0.0395 U	0.157 U	0.0354 U
	Aroclor 1248	1	1	100	1	0.783 U	0.435 U	0.0510 U	0.0390 U	2.05 U	0.0418 U	0.0356 U	2.99 U	2.94 U	0.854 U	0.748 U	0.0386 U	0.0395 U	0.157 U	0.0354 U
	Aroclor 1254	1	1	100	1	**1.74**	**1.10**	**0.300**	**0.550**	**6.32**	**0.273**	**0.367**	**11.6**	**18.0**	**5.21**	**2.89**	0.0386 U	0.0395 U	**2.65**	0.0354 U
	Aroclor 1260	1	1	100	1	0.783 U	0.435 U	0.0510 U	0.0390 U	2.05 U	0.0418 U	0.0356 U	2.99 U	**3.19**	**0.979**	0.748 U	0.0386 U	0.0395 U	0.157 U	0.0354 U
	Aroclor 1262	1	1	100	1	0.783 U	0.435 U	0.0510 U	0.0390 U	2.05 U	0.0418 U	0.0356 U	2.99 U	2.94 U	0.854 U	0.748 U	0.0386 U	0.0395 U	0.157 U	0.0354 U
	Aroclor 1268	1	1	100	1	0.783 U	0.435 U	0.0510 U	0.0390 U	2.05 U	0.0418 U	0.0356 U	2.99 U	2.94 U	0.854 U	0.748 U	0.0386 U	0.0395 U	0.157 U	0.0354 U
	Total PCBs	1	1	100	1	**1.74**	**1.10**	**0.300**	**0.550**	**6.32**	**0.273**	**0.367**	**11.6**	**21.19**	**6.189**	**2.89**	0.0386 U	0.0395 U	**2.65**	0.0354 U

Notes:

mg/kg - milligrams per kilogram (dry weight) or parts per million (ppm).

J - Estimated value.

U - Compound was not detected at specified quantitation limit.

Values in **Bold** indicate the compound was detected.

Values shown in Bold and shaded type exceed one or more of the listed MassDEP Method 1 standards.

PCBs - Polychlorinated Biphenyls.

TSCA - Toxic Substances Control Act criteria.

UCLs - Upper concentration limits.

* - For reference purposes only.

Summary of Analytical Results for On-Site Soil Investigation -- 1997 through 2012
Kiley Barrel
Somerville, Massachusetts

Analysis	Analyte					Sample ID:	TSCA-CMW-9-5 (cont)	TSCA-CMW-9-6			TSCA-CMW-9-7			TSCA-CMW-9-8		
						Sample Depth (ft.):	2-2.5	0-0.5	1-1.5	2-2.5	0-0.5	1-1.5	2-2.5	0-0.5	1-1.5	2-2.5
						Sample Date:	3/3/2010	3/3/2010	3/3/2010	3/3/2010	3/3/2010	3/3/2010	3/3/2010	3/3/2010	3/3/2010	3/3/2010
		S-1/GW-2	S-1/GW-3	UCLs*	TSCA											
PCBs																
(mg/kg)	Aroclor 1016	1	1	100	1		0.202 U	0.0364 U	2.06 U	0.0421 U	0.384 U	0.0378 U	0.0376 U	0.152 U	0.0393 U	0.164 U
	Aroclor 1221	1	1	100	1		0.202 U	0.0364 U	2.06 U	0.0421 U	0.384 U	0.0378 U	0.0376 U	0.152 U	0.0393 U	0.164 U
	Aroclor 1232	1	1	100	1		0.202 U	0.0364 U	2.06 U	0.0421 U	0.384 U	0.0378 U	0.0376 U	0.152 U	0.0393 U	0.164 U
	Aroclor 1242	1	1	100	1		0.202 U	0.0364 U	2.06 U	0.0421 U	0.384 U	0.0378 U	0.0376 U	0.152 U	0.0393 U	0.164 U
	Aroclor 1248	1	1	100	1		0.202 U	0.0364 U	2.06 U	0.0421 U	0.384 U	0.0378 U	0.0376 U	0.152 U	0.0393 U	0.164 U
	Aroclor 1254	1	1	100	1		**1.22**	**0.189**	**3.04**	**0.532**	**1.43**	**0.446**	**0.329**	**1.46**	0.0393 U	**0.355**
	Aroclor 1260	1	1	100	1		0.202 U	0.0364 U	2.06 U	0.0421 U	0.384 U	**0.158**	**0.140**	**0.492**	0.0393 U	0.164 U
	Aroclor 1262	1	1	100	1		0.202 U	0.0364 U	2.06 U	0.0421 U	0.384 U	0.0378 U	0.0376 U	0.152 U	0.0393 U	0.164 U
	Aroclor 1268	1	1	100	1		0.202 U	0.0364 U	2.06 U	0.0421 U	0.384 U	0.0378 U	0.0376 U	0.152 U	0.0393 U	0.164 U
	Total PCBs	1	1	100	1		**1.22**	**0.189**	**3.04**	**0.532**	**1.43**	**0.604**	**0.469**	**1.952**	0.0393 U	**0.355**

Notes:

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Values shown in Bold and shaded type exceed one or more of the listed MassDEP Method 1 standards.

PCBs - Polychlorinated Biphenyls.

TSCA - Toxic Substances Control Act criteria.

UCLs - Upper concentration limits.

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Summary of Analytical Results for On-Site Soil Investigation -- 1997 through 2012
Kiley Barrel
Somerville, Massachusetts

Analysis	Analyte	Sample ID:				TSCA-CMW-9-9			TSCA-ECS-B2-1			TSCA-ECS-B2-2			TSCA-ECS-B2-3		
		Sample Depth (ft.):				0-0.5	1-1.5	2-2.5	0-0.5	1-1.5	2-2.5	0-0.5	1-1.5	2-2.5	0-0.5	1-1.5	2-2.5
		Sample Date:				3/3/2010	3/3/2010	3/3/2010	3/4/2010	3/4/2010	3/4/2010	3/4/2010	3/4/2010	3/4/2010	3/4/2010	3/4/2010	3/4/2010
		S-1/GW-2	S-1/GW-3	UCLs*	TSCA												
PCBs																	
(mg/kg)	Aroclor 1016	1	1	100	1	0.0369 U	0.0376 U	0.0392 U	0.366 U	0.238 U	0.0416 U	0.0382 U	0.0390 U	0.0406 U	0.204 U	0.249 U	0.0426 U
	Aroclor 1221	1	1	100	1	0.0369 U	0.0376 U	0.0392 U	0.366 U	0.238 U	0.0416 U	0.0382 U	0.0390 U	0.0406 U	0.204 U	0.249 U	0.0426 U
	Aroclor 1232	1	1	100	1	0.0369 U	0.0376 U	0.0392 U	0.366 U	0.238 U	0.0416 U	0.0382 U	0.0390 U	0.0406 U	0.204 U	0.249 U	0.0426 U
	Aroclor 1242	1	1	100	1	0.0369 U	0.0376 U	0.0392 U	0.366 U	0.238 U	0.0416 U	0.0382 U	0.0390 U	0.0406 U	0.204 U	0.249 U	0.0426 U
	Aroclor 1248	1	1	100	1	0.0369 U	0.0376 U	0.0392 U	0.366 U	0.238 U	0.0416 U	0.0382 U	0.0390 U	0.0406 U	0.204 U	0.249 U	0.0426 U
	Aroclor 1254	1	1	100	1	**0.603**	0.0376 U	0.0392 U	**1.63**	0.238 U	**0.120**	**0.519**	**0.110**	**0.347**	**2.62**	**0.387**	0.0426 U
	Aroclor 1260	1	1	100	1	**0.138**	0.0376 U	0.0392 U	**0.464**	0.238 U	**0.0550**	**0.187**	**0.0492**	**0.124**	**0.506**	0.249 U	0.0426 U
	Aroclor 1262	1	1	100	1	0.0369 U	0.0376 U	0.0392 U	0.366 U	0.238 U	0.0416 U	0.0382 U	0.0390 U	0.0406 U	0.204 U	0.249 U	0.0426 U
	Aroclor 1268	1	1	100	1	0.0369 U	0.0376 U	0.0392 U	0.366 U	0.238 U	0.0416 U	0.0382 U	0.0390 U	0.0406 U	0.204 U	0.249 U	0.0426 U
	Total PCBs	1	1	100	1	**0.741**	0.0376 U	0.0392 U	**2.094**	0.238 U	**0.175**	**0.706**	**0.159**	**0.471**	**3.126**	**0.387**	0.0426 U

Notes:

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PCBs - Polychlorinated Biphenyls.

TSCA - Toxic Substances Control Act criteria.

UCLs - Upper concentration limits.

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Summary of Analytical Results for On-Site Soil Investigation -- 1997 through 2012
Kiley Barrel
Somerville, Massachusetts

Analysis	Analyte	Sample ID:				TSCA-ECS-B2-4			TSCA-ECS-B2-5				TSCA-ECS-B2-6			TSCA-ECS-B2-7		
		Sample Depth (ft.):				0-0.5	1-1.5	2-2.5	0-0.5	1-1.5	1-1.5	2-2.5	0-0.5	1-1.5	2-2.5	0-0.5	1-1.5	2-2.5
		Sample Date:				3/4/2010	3/4/2010	3/4/2010	3/4/2010	3/4/2010	3/4/2010 Field Dup	3/4/2010	3/4/2010	3/4/2010	3/4/2010	3/4/2010	3/4/2010	3/4/2010
		S-1/GW-2	S-1/GW-3	UCLs*	TSCA													
PCBs																		
(mg/kg)	Aroclor 1016	1	1	100	1	1.14 U	0.824 U	0.0846 U	0.750 U	0.0810 U	0.0790 U	0.0431 U	4.30 U	0.200 U	0.0401 U	0.865 U	0.188 U	0.372 U
	Aroclor 1221	1	1	100	1	1.14 U	0.824 U	0.0846 U	0.750 U	0.0810 U	0.0790 U	0.0431 U	4.30 U	0.200 U	0.0401 U	0.865 U	0.188 U	0.372 U
	Aroclor 1232	1	1	100	1	1.14 U	0.824 U	0.0846 U	0.750 U	0.0810 U	0.0790 U	0.0431 U	4.30 U	0.200 U	0.0401 U	0.865 U	0.188 U	0.372 U
	Aroclor 1242	1	1	100	1	1.14 U	0.824 U	0.0846 U	0.750 U	0.0810 U	0.0790 U	0.0431 U	4.30 U	0.200 U	0.0401 U	0.865 U	0.188 U	0.372 U
	Aroclor 1248	1	1	100	1	1.14 U	0.824 U	0.0846 U	0.750 U	0.0810 U	0.0790 U	0.0431 U	4.30 U	0.200 U	0.0401 U	0.865 U	0.188 U	0.372 U
	Aroclor 1254	1	1	100	1	**3.84**	**3.44**	**0.538**	**4.76**	**1.25**	**0.962**	**0.266**	**20.0**	**0.534**	0.0401 U	**7.09**	**0.767**	**1.40**
	Aroclor 1260	1	1	100	1	1.14 U	0.824 U	0.0846 U	**0.970**	**0.431**	**0.322**	**0.0777**	**6.02**	**0.208**	0.0401 U	**2.32**	0.188 U	0.372 U
	Aroclor 1262	1	1	100	1	1.14 U	0.824 U	0.0846 U	0.750 U	0.0810 U	0.0790 U	0.0431 U	4.30 U	0.200 U	0.0401 U	0.865 U	0.188 U	0.372 U
	Aroclor 1268	1	1	100	1	1.14 U	0.824 U	0.0846 U	0.750 U	0.0810 U	0.0790 U	0.0431 U	4.30 U	0.200 U	0.0401 U	0.865 U	0.188 U	0.372 U
	Total PCBs	1	1	100	1	**3.84**	**3.44**	**0.538**	**5.73**	**1.681**	**1.284**	**0.3437**	**26.02**	**0.742**	0.0401 U	**9.41**	**0.767**	**1.40**

Notes:

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Summary of Analytical Results for On-Site Soil Investigation -- 1997 through 2012
Kiley Barrel
Somerville, Massachusetts

Analysis	Analyte	Sample ID:				TSCA-ECS-B2-8			TSCA-ECS-B2-9			I05		K04			L04	
		Sample Depth (ft.):				0-0.5	1-1.5	2-2.5	0-0.5	1-1.5	2-2.5	0-1	1-3	0-1	0-1	1-3	0-1	1-1.5
		Sample Date:				3/4/2010	3/4/2010	3/4/2010	3/4/2010	3/4/2010	3/4/2010	6/19/2012	6/19/2012	6/19/2012	6/19/2012 Field Dup	6/19/2012	6/19/2012	6/19/2012
		S-1/GW-2	S-1/GW-3	UCLs*	TSCA													
PCBs																		
(mg/kg)	Aroclor 1016	1	1	100	1	1.87 U	0.0390 U	0.0386 U	0.0408 U	0.0400 U	0.0392 U	0.50 U	0.13 U	1.2 U	1.3 U	0.12 U	13 U	12 U
	Aroclor 1221	1	1	100	1	1.87 U	0.0390 U	0.0386 U	0.0408 U	0.0400 U	0.0392 U	0.50 U	0.13 U	1.2 U	1.3 U	0.12 U	13 U	12 U
	Aroclor 1232	1	1	100	1	1.87 U	0.0390 U	0.0386 U	0.0408 U	0.0400 U	0.0392 U	0.50 U	0.13 U	1.2 U	1.3 U	0.12 U	13 U	12 U
	Aroclor 1242	1	1	100	1	1.87 U	0.0390 U	0.0386 U	0.0408 U	0.0400 U	0.0392 U	0.50 U	0.13 U	1.2 U	1.3 U	0.12 U	13 U	12 U
	Aroclor 1248	1	1	100	1	1.87 U	0.0390 U	0.0386 U	0.0408 U	0.0400 U	0.0392 U	0.50 U	0.13 U	1.2 U	1.3 U	0.12 U	**70**	**35**
	Aroclor 1254	1	1	100	1	**6.31**	**0.124**	0.0386 U	**0.254**	0.0400 U	0.0392 U	**4.2**	**0.67**	**11**	**8.1**	**0.66**	**110**	**40**
	Aroclor 1260	1	1	100	1	1.87 U	0.0390 U	0.0386 U	0.0408 U	0.0400 U	0.0392 U	**1.7**	**0.32**	1.2 U	1.3 U	0.12 U	**16**	12 U
	Aroclor 1262	1	1	100	1	1.87 U	0.0390 U	0.0386 U	0.0408 U	0.0400 U	0.0392 U	0.50 U	0.13 U	1.2 U	1.3 U	0.12 U	13 U	12 U
	Aroclor 1268	1	1	100	1	1.87 U	0.0390 U	0.0386 U	0.0408 U	0.0400 U	0.0392 U	0.50 U	0.13 U	1.2 U	1.3 U	0.12 U	13 U	12 U
	Total PCBs	1	1	100	1	**6.31**	**0.124**	0.0386 U	**0.254**	0.0400 U	0.0392 U	**5.9**	**0.99**	**11**	**8.1**	**0.66**	**196**	**75**

Notes:

mg/kg - milligrams per kilogram (dry weight) or parts per million (ppm).

J - Estimated value.

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Values shown in Bold and shaded type exceed one or more of the listed MassDEP Method 1 standards.

PCBs - Polychlorinated Biphenyls.

TSCA - Toxic Substances Control Act criteria.

UCLs - Upper concentration limits.

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Summary of Analytical Results for On-Site Soil Investigation -- 1997 through 2012
Kiley Barrel
Somerville, Massachusetts

Analysis	Analyte	Sample ID:				H06R			K05R				L05R		
		Sample Depth (ft.):				3-5	6.5-8.5	11-13	3-5	8-10	8-10	12-14	3-5	7-8	9-11
		Sample Date:				9/18/2012	9/18/2012	9/18/2012	9/18/2012	9/18/2012	9/18/2012 Field Dup	9/18/2012	9/18/2012	9/18/2012	9/18/2012
		S-1/GW-2	S-1/GW-3	UCLs*	TSCA										
PCBs															
(mg/kg)	Aroclor 1016	1	1	100	1	1.2 U	0.23 U	0.12 U	0.13 U	0.15 U	0.14 U	0.11 U	0.11 U	0.13 U	0.12 U
	Aroclor 1221	1	1	100	1	1.2 U	0.23 U	0.12 U	0.13 U	0.15 U	0.14 U	0.11 U	0.11 U	0.13 U	0.12 U
	Aroclor 1232	1	1	100	1	1.2 U	0.23 U	0.12 U	0.13 U	0.15 U	0.14 U	0.11 U	0.11 U	0.13 U	0.12 U
	Aroclor 1242	1	1	100	1	1.2 U	0.23 U	0.12 U	0.13 U	0.15 U	0.14 U	0.11 U	0.11 U	0.13 U	0.12 U
	Aroclor 1248	1	1	100	1	1.2 U	0.23 U	0.12 U	0.13 U	0.15 U	0.14 U	0.11 U	0.11 U	0.13 U	0.12 U
	Aroclor 1254	1	1	100	1	**5.2**	0.23 U	0.12 U	**0.21**	0.15 U	0.14 U	0.11 U	**0.31**	0.13 U	**1.0**
	Aroclor 1260	1	1	100	1	1.2 U	0.23 U	0.12 U	0.13 U	0.15 U	0.14 U	0.11 U	0.11 U	0.13 U	0.12 U
	Aroclor 1262	1	1	100	1	1.2 U	0.23 U	0.12 U	0.13 U	0.15 U	0.14 U	0.11 U	0.11 U	0.13 U	0.12 U
	Aroclor 1268	1	1	100	1	1.2 U	0.23 U	0.12 U	0.13 U	0.15 U	0.14 U	0.11 U	0.11 U	0.13 U	0.12 U
	Total PCBs	1	1	100	1	**5.2**	0.23 U	0.12 U	**0.21**	0.15 U	0.14 U	0.11 U	**0.31**	0.13 U	**1.0**

Notes:

mg/kg - milligrams per kilogram (dry weight) or parts per million (ppm).

J - Estimated value.

U - Compound was not detected at specified quantitation limit.

Values in **Bold** indicate the compound was detected.

Values shown in Bold and shaded type exceed one or more of the listed MassDEP Method 1 standards.

PCBs - Polychlorinated Biphenyls.

TSCA - Toxic Substances Control Act criteria.

UCLs - Upper concentration limits.

* - For reference purposes only.

Table 2 - Estimated Soil Excavation Quantities
Former Kiley Barrel Site
Somerville, Massachusetts

Soil Type[4]	ID	Area (square ft)	Depth of Excavation (ft)	Volume (inplace cubic yards)	Estimated Weight[3] (tons)
A	TSCA-A1	100	0.00 - 4.33	16	24
	TSCA-A2	100	0.00 - 2.33	9	13
	TSCA-A3	100	0.00 - 2.33	9	13
	TSCA-A4a	85	0.00 - 3.33	10	16
	TSCA-A4b	173	0.00 - 1.33	9	13
	TSCA-A4c	258	0.00 - 3.33	32	48
	TSCA-A4d	97	0.00 - 7.33	26	40
	TSCA-A5	91	0.00 - 1.33	4	7
B	TSCA-A2	100	2.33 - 3.00	2	4
	TSCA-A3	100	2.33 - 3.00	2	4
	TSCA-A4b	169	1.33 - 3.00	10	16
	TSCA-A5	91	1.33 - 3.00	6	8
	VOC-1	762	3.00 - 8.00	141	212
	Several	11,918	0.00 - 3.00	1,324	1,986
C	Several[1]	2,487	0.00 - 3.00	276	415
D	*(none anticipated)*				
E	Several[1]	8,511	0.00 - 3.00	946	1,418
	TSCA-A2	100	2.33 - 3.00	2	4
	TSCA-A3	100	2.33 - 3.00	2	4
F[2]	Several[1]	11,466	0.00 - 3.00	1,161	1,742
			Subtotal	*3,990*	*5,984*
Estimated totals					
A	PCB Remedation Waste with PCB content equal to or greater than 50 mg/kg PCBs.			115	172
B	PCB Remedation Waste with PCB content of greater than 1 to less than 50 mg/kg and hazardous waste			1,486	2,230
C	PCB content less than or equal to 1 mg/kg and hazardous waste (metals)			276	415
D	PCB content less than or equal to 1 mg/kg and hazardous waste (VOCs)			0	0
E	PCB Remedation Waste with PCB content of greater than 1 to less than 50 mg/kg and non-hazardous waste			951	1,426
F	PCB content less than or equal to 1 mg/kg and greater than MCP S-1 standards for other OHM			5,154	7,732
			Total	**7,983**	**11,974**

Table 2 - Estimated Soil Excavation Quantities
Former Kiley Barrel Site
Somerville, Massachusetts

Notes:

1. The term "Several" refers to excavation areas outside the specifically targeted PCB areas in shallow soil. Refer to Figure 4 for the delineation of the four "Several" areas. Type B Several refers to pink/hatched areas; Type C Several refers to green/hatched areas; Type E Several refers to pink/not hatched areas, and; Type F Several refers to green/not hatched areas.

2. The soil volume for Type F shallow soil is adjusted downward (-113 cy) for a net reduction in soil excavated to achieve a 3-foot final cover where final grades are increased over existing grades (primarily on the 264-266 Somerville Avenue parcel).

3. Weights are estimated by multiplying inplace volumes by 1.5 tons/cubic yard.

4. Soil types are base on available soil data and shall be used for soil stockpile segregation purposes at the time of excavation. Waste characterization for disposal will be performed on stockpile segments as governed by disposal facility requirements (e.g., 1 composite sample per 250 tons of stockpiled soil for non-VOC parameters). Soil types are defined as follows:

Type A soil (PCB content equal to or greater than 50 mg/kg PCBs) -Type A soil has a PCB content equal to or greater than 50 mg/kg and is not expected to be RCRA hazardous (fail TCLP analysis). These soils are considered TSCA PCB Remediation waste. If hazardous, consideration will be given to treating this soil on-site or at an off-site treatment or disposal facility and not on Site. This soil must be disposed in a licensed TSCA waste management facility.

Type B soil (PCB content of greater than 1 to less than 50 mg/kg and hazardous waste) - Type B soil has a PCB content greater than 1 mg/kg and less than 50 mg/kg in soil. This soil also contains metals and/or VOCs at concentrations which may exceed the TCLP toxicity criteria (e.g., exceed the '20 times rule' for potentially being RCRA characteristic hazardous waste) for one or more metals (typically lead) or VOCs. This soil shall be sampled and analyzed for the TCLP toxicity characteristics to determine if it is actually hazardous waste. If hazardous, on-site or off-site treatment is needed to render it non-hazardous and suitable for disposal. Disposal may be at a landfill permitted to accept MCP Remediation Waste (i.e., non-TSCA regulated PCB impacted soil) with a PCB concentration less than 50 mg/kg.

Type C soil (PCB content less than or equal to 1 mg/kg and hazardous waste (metals)) - Type C soil has a PCB content less than or equal to 1 mg/kg but contains metals at concentrations which exceed the TCLP toxicity criteria (e.g., exceed the '20 times' rule). This soil is not PCB remediation waste. This soil shall be analyzed for the TCLP toxicity characteristic to determine if it is actually hazardous waste. If hazardous, on-site or off-site treatment is needed to render it non-hazardous and suitable for disposal. Disposal and/or reuse may be at a lined landfill.

Type D soil (PCB content less than or equal to 1 mg/kg and hazardous waste (VOCs)) Type D soil has a PCB content less than or equal to 1 mg/kg but contains VOCs at concentrations which may the TCLP toxicity criteria (e.g., exceed the '20 times' rule). This soil is not PCB remediation waste. This stockpiled soil shall be analyzed for the TCLP characteristic to determine if it is actually hazardous waste. If hazardous, on-site or off-site treatment is needed to render it non-hazardous and suitable for disposal. Disposal and/or reuse may be at a lined landfill.

Type E soil (PCB content of greater than 1 to less than 50 mg/kg and non-hazardous waste) - Type E soil has a PCB content greater than 1 mg/kg and less than 50 mg/kg in soil, and OHM do not exceed the '20 times rule' or through testing is determined to be non-hazardous. This soil is considered MCP Remediation Waste (i.e., non-TSCA regulated PCB impacted soil). Disposal may be in a landfill permitted to accept MCP Remediation Waste with PCBs at a concentration less than 50 mg/kg.

Type F soil (PCB content less than or equal to 1 mg/kg and greater than MCP S-1 standards for other OHM) - Type F soil contains OHM at concentrations greater than MCP Method 1 S-1 soil cleanup standards (except less than or equal to 1 mg/kg PCB) and is otherwise non-hazardous waste and is not PCB remediation waste. Depending on OHM concentrations, this soil can be disposed in lined landfills or reused as landfill cover material or in an asphalt batching facility, assuming the material is geotechnically suitable for the proposed reuse.

Table 3
Summary of PCB Analytical Results for Groundwater Investigations - 1997 through 2014
Former Kiley Barrel Site
Somerville, Massachusetts

Analysis	Analyte	Sample ID:		CMW-6	CMW-8	CMW-9			ECS-1		GZ-1	GZ-2	GZ-3	GZ-4		MW-01
		Sample Date:		10/4/11	10/3/2011	3/24/2009	3/24/2009 Field Dup	10/5/2011	3/25/2009	10/4/2011	10/4/2011	10/3/2011	10/4/2011	10/3/2011	10/3/2011 Field Dup	9/25/2012
		GW-2	GW-3													
PCBs																
(ug/L)	PCB 1016	5	10	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
	PCB 1221	5	10	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
	PCB 1232	5	10	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
	PCB 1242	5	10	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
	PCB 1248	5	10	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
	PCB 1254	5	10	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	**0.58**	0.20 U
	PCB 1260	5	10	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
	PCB 1262	5	10	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
	PCB 1268	5	10	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
	Total PCBs	5	10	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	**0.58**	0.20 U

Notes:

ug/L - micrograms per liter.

Values in **Bold** indicate the compound was detected.

Values shown in Bold and shaded type exceed one or more of the listed MassDEP Method 1 standards.

PCBs - Polychlorinated Biphenyls.

Table 3
Summary of PCB Analytical Results for Groundwater Investigations - 1997 through 2014
Former Kiley Barrel Site
Somerville, Massachusetts

Analysis	Analyte	Sample ID:		TRC-01	TRC-02	TRC-2M	TRC-03	TRC-04	TRC-05	TRC-07	TRC-08	TRC-9	TRC-11	TRC-12
		Sample Date:		10/7/2011	10/6/2011	10/6/2011	10/7/2011	10/5/2011	10/5/2011	10/5/2011	10/6/2011	10/4/2011	10/3/2011	10/6/2011
		GW-2	GW-3											
PCBs														
(ug/L)	PCB 1016	5	10	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
	PCB 1221	5	10	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
	PCB 1232	5	10	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
	PCB 1242	5	10	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
	PCB 1248	5	10	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
	PCB 1254	5	10	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
	PCB 1260	5	10	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
	PCB 1262	5	10	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
	PCB 1268	5	10	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
	Total PCBs	5	10	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U

Notes:

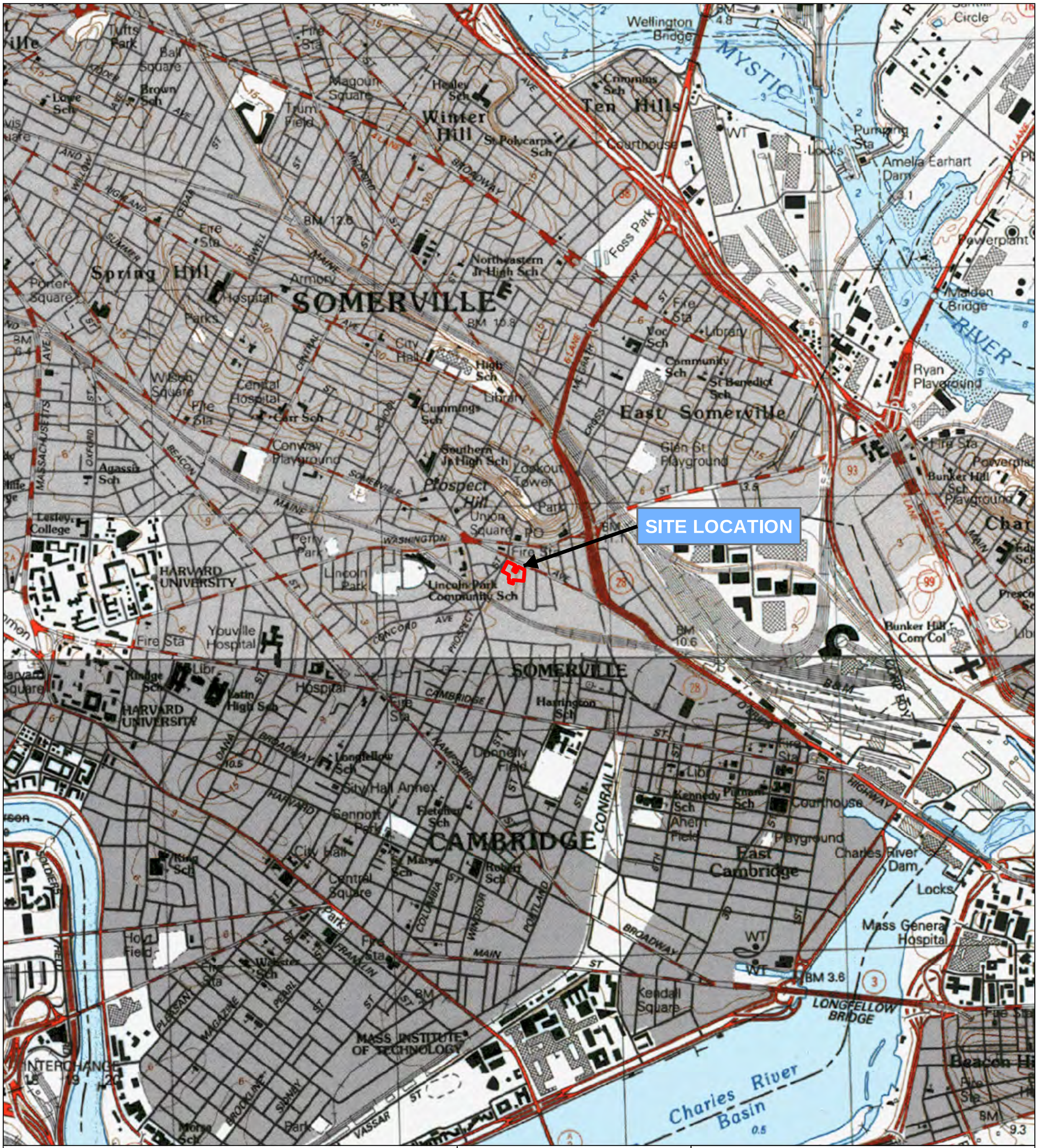
ug/L - micrograms per liter.

Values in **Bold** indicate the compound was detected.

Values shown in Bold and shaded type exceed one or more of the listed MassDEP Method 1 standards.

PCBs - Polychlorinated Biphenyls.

FIGURES

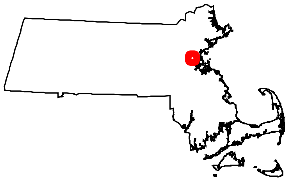


Approximate Site Boundary

N

0 1,000 2,000 Feet

Base map: USGS 7.5 Minute Quadrangle Boston North and Boston South (1983)



MASSACHUSETTS

TRC
Wannalancit Mills
650 Suffolk Street
Lowell, MA 01854
978-970-5600

FORMER KILEY BARREL SITE
SOMERVILLE, MA

SITE LOCATION MAP

FIGURE 1 | **SEPTEMBER 2012**

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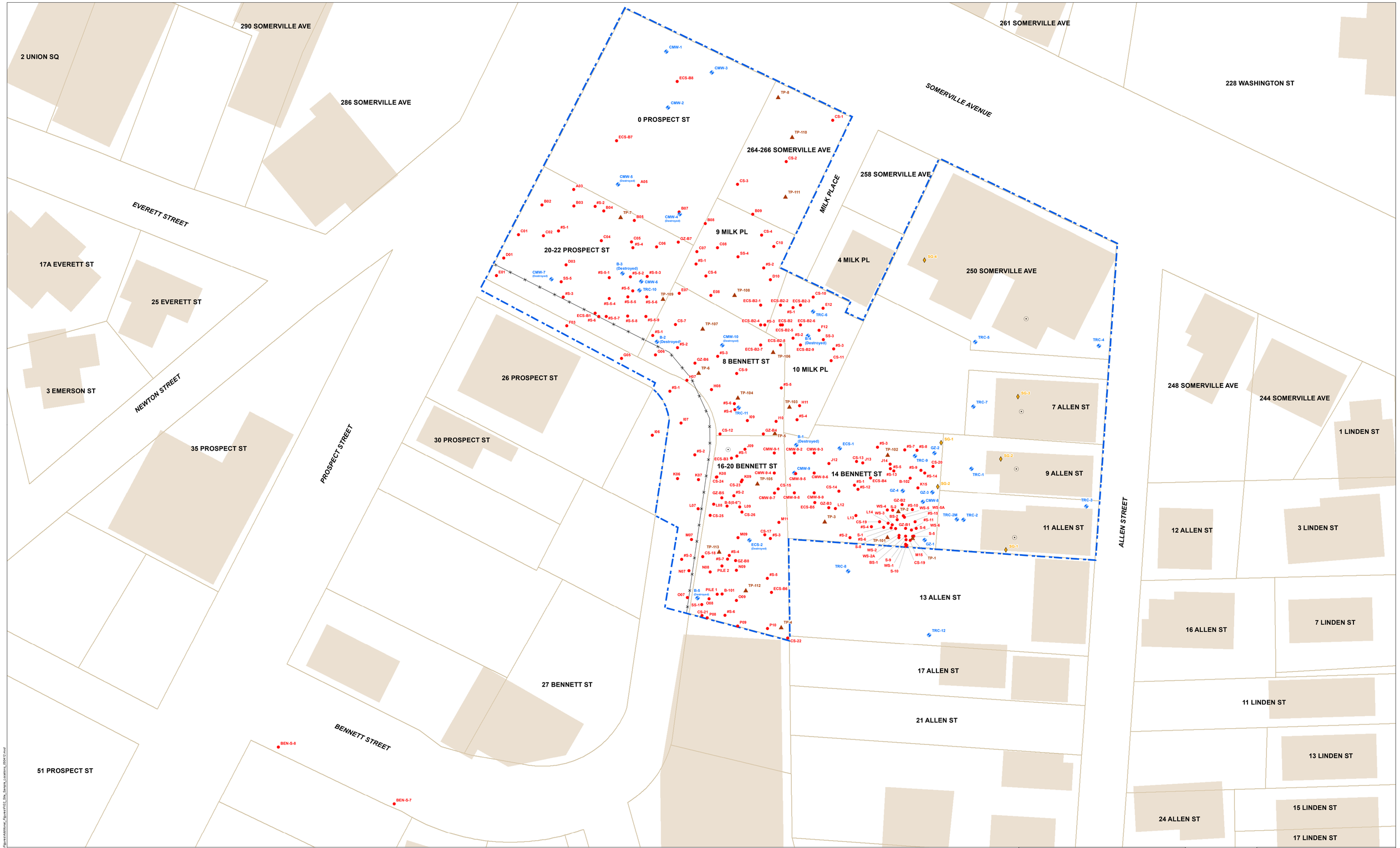

Approximate Fence Location
Site Boundary
Approximate Building Footprints from LIDAR data
Somerville Parcels

Boring Location
Monitoring Well Location
Soil Gas Sample Location
Test Pit Location
Air Sample Location by TRC

Note:
preceding a sample ID indicates that the parcel address precedes the listed sample ID. Ex: the sample ID for #S-3 on the 9 Milk Place parcel is 9Milk-S-3.

0 10 20 30 40 Feet

1 inch = 20 feet

Base Map: Buildings, Parcels and Roads, MassGIS 2011

N

SOMERVILLE
SITE LOCATION

FORMER KILEY BARREL SITE
SOMERVILLE, MA

SITE SAMPLE LOCATIONS

TRC
Wannalancit Mills
650 Suffolk Street
Lowell, MA 01854
978-970-5600

SEPTEMBER 2012

FIGURE 2

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Overall MCP Site boundary for RTN 3-2849 b (impacted soil and groundwater)

Down gradient area boundary associated with MCP RTN 2-28464 (impacted groundwater and potential vapor intrusion)

Estimated Excavation Area VOC Source Zone

Estimated Area of PCB Remediation Waste (PCBs>= 50 mg/kg)

Note:
preceding a sample ID indicates that the parcel address precedes the listed sample ID. Ex: the sample ID for #S-3 on the 9 Milk Place parcel is 9Milk-S-3.

Well Chart Colors

Well chart colors show PCB concentrations at various depth intervals. The intervals are shown with shallowest sample at the top of the bar and only include the depths sampled. Non-standard depths are outlined in blue and labeled with the depth.

PCB Concentration Range (mg/kg)

- 0 > 1 (or below the reporting limit)
- 1 > 3
- 3 > 10
- 10 > 50
- 50+

Standard Sample Intervals (feet below the ground surface)

- 0-1
- 1-2
- 2-3
- 3-5
- 5-7
- 7-9
- 9-11
- 11-13
- 13-15

Non-standard Sample Depth Interval
Color indicates PCB concentration range and depth interval below the ground surface is labeled as feet.

1'-2'

0 10 20 30 Feet

1 inch = 10 feet

Base Map: Buildings, Parcels and Roads, MassGIS 2011

N

SOMERVILLE

SITE LOCATION

FORMER KILEY BARREL SITE
SOMERVILLE, MA

SOIL ANALYTICAL RESULTS SUMMARY MAP (PCB)

TRC
Wannalancit Mills
650 Suffolk Street
Lowell, MA 01854
978-970-5600

September 2014

FIGURE 3

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LEGEND

SITE BOUNDARY (RTN 3–2849)

FORMER RTN 3–28464 (APPLIES TO GROUNDWATER AND INDOOR AIR)

EXISTING PROPERTY LINE (OFF–PROPERTY PARCELS)

KILEY BARREL PARCEL PROPERTY LINE

PROPOSED SUBGRADE CONTOUR (3 FEET BELOW EXISTING GRADE)

95 / 96 PROPOSED SUBGRADE CONTOURS (WHERE DIFFERENT FROM EXISTING)

RI–9 REMEDIAL ADDITIVE INJECTION LOCATION AND I.D.

PROPOSED STRAW BALES

ESTIMATED AREA WHERE SOIL MAY REQUIRE METALS STABILIZATION. LEAD CONCENTRATION > 800 MG/KG BASED ON INFORMATION AVAILABLE TO DATE

PROPOSED TEMPORARY FENCE

INTERSECTION OF EXISTING & PROPOSED FENCE LINES

PROPOSED CHAIN LINK GATE

EXISTING CATCH BASIN

EXISTING MONITORING WELL (TO REMAIN)

EXISTING MONITORING WELL (CURRENTLY DESTROYED OR NOT FOUND)

EXISTING MANHOLE

EXISTING UTILITY POLE

EXISTING ELECTRICAL MANHOLE

ESTIMATED EXCAVATION AREA. PCB CONCENTRATION ≤ 1 MG/KG BASED ON INFORMATION AVAILABLE TO DATE

ESTIMATED EXCAVATION AREA. PCB CONCENTRATION 1 < X < 50 MG/KG BASED ON INFORMATION AVAILABLE TO DATE

TSCA-A1 ESTIMATED EXCAVATION AREA. PCB CONCENTRATION ≥ 50 MG/KG BASED ON INFORMATION AVAILABLE TO DATE

ESTIMATED EXCAVATION AREA VOC SOURCE ZONE BASED ON INFORMATION AVAILABLE TO DATE

NOTES:

1. EXCAVATED SOIL SHALL BE SEGREGATED BASED ON THE FOLLOWING CATEGORIES:

- TYPE A SOIL (PCB CONTENT EQUAL TO OR GREATER THAN 50 MG/KG PCBS)) – TYPE A SOIL HAS A PCB CONTENT EQUAL TO OR GREATER THAN 50 MG/KG AND IS NOT EXPECTED TO BE HAZARDOUS. IF ALSO HAZARDOUS (AND DUE TO THE HIGH PCB CONTENT), CONSIDERATION WILL BE GIVEN TO TREATING THIS SOIL AT AN OFF–SITE TREATMENT OR DISPOSAL FACILITY AND NOT ON SITE. THIS SOIL MUST BE DISPOSED IN A LICENSED TSCA OR RCRA WASTE MANAGEMENT FACILITY.
- TYPE B SOIL (PCB CONTENT OF 1 TO 50 MG/KG AND HAZARDOUS WASTE) – TYPE B SOIL HAS A PCB CONTENT GREATER THAN 1 MG/KG AND LESS THAN 50 MG/KG IN SOIL. THIS SOIL ALSO CONTAINS METALS OR VOCS AT CONCENTRATIONS WHICH EXCEED THE '20 TIMES RULE' (FOR POTENTIALLY BEING RCRA CHARACTERISTIC HAZARDOUS WASTE) FOR ONE OR MORE METALS (TYPICALLY LEAD) OR VOCS. THIS SOIL WILL NEED TO BE ANALYZED FOR THE TCLP CHARACTERISTIC TO DETERMINE IF IT IS HAZARDOUS WASTE. IF HAZARDOUS, ON–SITE OR OFF–SITE TREATMENT IS NEEDED TO RENDER IT NON–HAZARDOUS AND SUITABLE FOR DISPOSAL. ONCE TREATED, DISPOSAL MAY BE IN A SPECIALLY PERMITTED NON–TSCA LANDFILL AS COVER MATERIAL OR WASTE, DEPENDING ON THE FACILITY PERMIT.
- TYPE C SOIL (PCB CONTENT EQUAL TO OR LESS THAN 1 MG/KG AND HAZARDOUS WASTE (METALS)) – TYPE C SOIL HAS A PCB CONTENT LESS THAN OR EQUAL TO 1 MG/KG BUT CONTAINS METALS AT CONCENTRATIONS WHICH EXCEED THE '20 TIMES RULE'. THIS SOIL WILL NEED TO BE ANALYZED FOR THE TCLP CHARACTERISTIC TO DETERMINE IF IT IS HAZARDOUS WASTE. IF HAZARDOUS, ON–SITE OR OFF–SITE TREATMENT IS NEEDED TO RENDER IT NON–HAZARDOUS AND SUITABLE FOR DISPOSAL.
- TYPE E SOIL (PCB CONTENT OF GREATER THAN 1 TO LESS THAN 50 MG/KG AND NON–HAZARDOUS WASTE) – TYPE E SOIL HAS A PCB CONTENT GREATER THAN 1 MG/KG AND LESS THAN 50 MG/KG IN SOIL, AND OHM DO NOT EXCEED THE "20 TIMES RULE". DISPOSAL MAY BE IN A SPECIALLY PERMITTED NON–TSCA LANDFILL AS COVER MATERIAL OR AS WASTE, DEPENDING ON THE FACILITY PERMIT.
- TYPE F SOIL (PCB CONTENT EQUAL TO OR LESS THAN 1 MG/KG AND GREATER THAN MCP S–1 STANDARDS) – TYPE F SOIL CONTAINS OHM AT CONCENTRATIONS GREATER THAN MCP METHOD 1 S–1 SOIL CLEANUP STANDARDS (EXCEPT LESS THAN OR EQUAL TO 1 MG/KG PCB), AND IS OTHERWISE NON–HAZARDOUS WASTE. DEPENDING ON OHM CONCENTRATIONS, THIS SOIL CAN BE DISPOSED IN LINED LANDFILLS OR REUSED AS LANDFILL COVER MATERIAL OR IN AN ASPHALT BATCHING FACILITY (IF PCB CONCENTRATIONS <1 MG/KG), ASSUMING THE MATERIAL IS GEOTECHNICALLY SUITABLE FOR THE PROPOSED REUSE.

2. TREATMENT OF EXCAVATION WATER SHALL BE CONDUCTED EITHER ON–SITE UNDER AN EPA REMEDIATION GENERAL PERMIT AND OTHER APPLICABLE STATE AND LOCAL PERMITS OR HAULED OFFSITE FOR TREATMENT. TREATED WATER SHALL BE DISCHARGED TO THE SUBSURFACE OR A CITY STORM DRAIN UPON RECEIPT OF ACCEPTABLE ANALYTICAL RESULTS.
3. EXTENT OF TARGETED EXCAVATION AREAS ARE BASED ON DATA AVAILABLE TO DATE. EXCAVATION DEPTHS REFER TO DEPTH BELOW GRADE. ENVIRONMENTAL SOIL SAMPLES WERE COLLECTED FROM BELOW BOTTOM OF GRAVEL, PAVEMENT, OR CONCRETE WHERE APPLICABLE. IN SOME AREAS SOIL IS MARKED FOR EXCAVATION WITH CONCENTRATIONS OF PCBS EQUAL TO OR GREATER THAN 50 MG/KG AND SHALLOWER THAN 3 FEET. THE SOIL BETWEEN THE BOTTOM OF THESE EXCAVATIONS AND 3 FEET IS CATEGORIZED AS CONTAINING BETWEEN GREATER THAN 1 AND LESS THAN 50 MG/KG OF PCBS. SEE TABLE 1 FOR A SUMMARY OF EXCAVATION TOTALS.
4. THE PROPERTY LINE SHALL BE STAKED AND MARKED WITH PAINT OR STRING BY A LICENSED LAND SURVEYOR PRIOR TO EXCAVATION.
5. LOCATIONS AND EXTENTS OF EXCAVATION AREAS ARE TO BE DETERMINED AND STAKED IN THE FIELD BY GPS OR SURVEY EQUIPMENT, PRIOR TO SITE WORK.
6. FOLLOWING THE INDIVIDUAL REMEDIAL EXCAVATIONS SHOWN FOR SOIL WITH PCBs ≥50 MG/KG, THE ENTIRE SITE SHALL BE EXCAVATED TO A DEPTH OF 3 FEET BELOW FINISH GRADE. SOIL GENERATED DURING THESE EXCAVATION ACTIVITIES SHALL BE MANAGED IN ACCORDANCE WITH THIS MODIFIED PHASE IV REMEDY IMPLEMENTATION PLAN.
7. DEBRIS UNCOVERED DURING EXCAVATION SHALL BE MANAGED AS PCB REMEDIATION WASTE, WITH THE EXCEPTION OF ITEMS RECOVERED WITHIN 0 PROSPECT AND 260–264 SOMERVILLE AVENUE (SEE NOTE 14, SITE PREPARATION PLAN).
8. REMEDIAL ADDITIVE (400 POUNDS OF REGENESIS 3–DMe FACTORY EMULSION, OR EQUIVALENT) SHALL BE APPLIED TO THE BASE OF SELECT EXCAVATION AREAS PRIOR TO AND DURING CRUSHED STONE BACKFILLING ACTIVITIES. SEE APPENDIX D OF THE PHASE IV REMEDIAL IMPLEMENTATION PLAN MODIFICATION DATED SEPTEMBER 2012 FOR DETAILS AND PROCEDURES.
9. REMEDIAL INJECTIONS SHALL BE PERFORMED AFTER ALL EXCAVATION AND BACKFILLING ACTIVITIES ARE COMPLETED. PROPER DILUTION OF THE REMEDIAL ADDITIVE SHALL BE PERFORMED AT THE BEGINNING OF EACH WORK DAY. INJECTIONS WILL BE CONDUCTED VIA DIRECT–PUSH POINTS AND THE REMEDIAL ADDITIVE WILL BE APPLIED VIA GRAVITY FEED. SEE APPENDIX D OF THE PHASE IV REMEDIAL IMPLEMENTATION PLAN MODIFICATION DATED SEPTEMBER 2012 FOR DETAILS AND PROCEDURES.
10. WHEN INSTALLING REMEDIAL INJECTION POINTS THROUGH GRAVEL COVER, THE SEPARATION FABRIC SHALL BE PATCHED UPON COMPLETION AND THE GRAVEL REPLACED. WHEN INSTALLING THROUGH EXISTING PAVEMENT, A PATCH SHALL BE INSTALLED. SEE FIGURE 8, DETAIL D–5.
11. IF FENCE REMOVAL OR OTHER PROPERTY ALTERATION IS REQUIRED FOR ACCESS TO INSTALL INJECTION POINTS, THE ALTERATIONS SHALL BE RESTORED TO ORIGINAL CONDITIONS IMMEDIATELY FOLLOWING THE INJECTION EVENT.
12. SEE APPENDIX D OF PHASE IV REMEDY IMPLEMENTATION PLAN MODIFICATION FOR RTN 3–2849, DATED SEPTEMBER 2012 FOR APPLICATION DETAILS FOR REMEDIAL ADDITIVE.
13. EXCAVATED SOIL SHALL BE PLACED IN SEGREGATED SOIL STOCKPILES OR CONTAINERS ON SITE. STOCKPILES SHALL BE SECURED AS ILLUSTRATED IN FIGURE 8, DETAIL D–2. STOCKPILES AND/OR CONTAINERS SHALL BE COVERED AND SECURED AT ALL TIMES WHEN NOT BEING ACCESSED
14. DEMARCATION FABRIC SHALL CONSIST OF A BRIGHTLY COLORED, NON–DEGRADABLE FABRIC, SUCH AS SNOW FENCE.
15. BACKFILL BENEATH THE WATER TABLE SHALL CONSIST OF CRUSHED STONE. THE CRUSHED STONE SHALL BE BACKFILLED AND COMPACTED TO AN ELEVATION EQUAL TO OR SLIGHTLY EXCEEDING THE WATER TABLE ELEVATION, PRIOR TO PLACEMENT OF COMMON BORROW.
18. PROPERTY BOUNDARY INFORMATION REFERENCES CITY OF SOMERVILLE TAX MAP.
19. SURVEY DATUM IS MASSACHUSETTS GRID NORTH AMERICAN DATUM 1983.

APPROXIMATE GRAPHIC SCALE
0' 10' 20' 40'

FORMER KILEY BARREL SITE
SOMERVILLE, MA

EXCAVATION PLAN

TRC
Wannalancit Mills
650 Suffolk Street
Lowell, MA 01854
(978) 970–5600

FIGURE 4

DRAWN BY: NSB
CHECKED BY: DGT
DATE: JULY 2014

FILE: \\ntapa-lowell\Environmental\Projects\Projects\196378 – City of Somerville – Kiley Barrel Cleanup\05 Reporting–Presentations–MeetinExcavationMap_v2.dwg

LEGEND

- SITE BOUNDARY (RTN 3-2849)
- FORMER RTN 3-28464 (APPLIES TO GROUNDWATER AND INDOOR AIR)
- EXISTING PROPERTY LINE (OFF-PROPERTY PARCELS)
- EXISTING TREELINE
- KILEY BARREL PARCEL PROPERTY LINE
- EXISTING FENCE
- EXISTING CONTOUR
- EXISTING MULCH BED
- EXISTING PAVEMENT AND CONCRETE
- PROPOSED EXIT DECONTAMINATION PAD
- PROPOSED TEMPORARY FENCE
- INTERSECTION OF EXISTING & PROPOSED FENCE LINES
- PROPOSED STRAW BALES
- EXISTING CATCH BASIN
- EXISTING MONITORING WELL
- EXISTING MONITORING WELL (CURRENTLY DESTROYED OR NOT FOUND)
- MONITORING WELL TO BE DECOMMISSIONED PER MASSDEP PROTOCOLS (IF FOUND)
- PROPOSED CHAIN LINK GATE ENDS
- EXISTING MANHOLE
- EXISTING UTILITY POLE
- EXISTING ELECTRICAL MANHOLE

SITE PREPARATION NOTES:

1. CONTRACTOR SHALL NOTIFY DIG-SAFE (1-888-344-7233) AT LEAST 72 HOURS BEFORE EXCAVATING.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR SITE SECURITY AND JOB SAFETY. CONSTRUCTION ACTIVITIES SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA), AND STANDARDS SET FORTH BY THE CITY OF SOMERVILLE.
3. CONTRACTOR SHALL PROVIDE AND MAINTAIN TEMPORARY FACILITIES TO PERFORM THE WORK INCLUDING TEMPORARY SANITARY FACILITIES AND WATER SUPPLY. ALL TEMPORARY FACILITIES INSTALLED AS PART OF THIS WORK SHALL BE REMOVED AND THE AREA RESTORED TO PRE-EXISTING OR DESIGN CONDITIONS, WHERE APPROPRIATE.
4. UPON AWARD OF CONTRACT, CONTRACTOR SHALL MAKE NECESSARY CONSTRUCTION NOTIFICATIONS AND OBTAIN NECESSARY PERMITS, PAY FEES, AND POST BONDS ASSOCIATED WITH THE WORK INDICATED ON THE PLANS, ASSOCIATED SPECIFICATIONS, AND OTHER DOCUMENTS.
5. PRIOR TO COMMENCING SITE WORK, THE CONTRACTOR SHALL NOTIFY APPROPRIATE AGENCIES AND SHALL INSTALL EROSION CONTROL MEASURES AS SHOWN ON THE PLANS AND AS IDENTIFIED IN FEDERAL, STATE, AND LOCAL APPROVAL DOCUMENTS PERTAINING TO THIS PROJECT.
6. CONTRACTOR SHALL INSPECT AND MAINTAIN EROSION CONTROL MEASURES AND REMOVE SEDIMENT ON AT LEASE A WEEKLY BASIS.
7. UPON COMPLETION OF CONSTRUCTION, CONTRACTOR SHALL REMOVE AND DISPOSE OF EROSION CONTROL MEASURES AND CLEAN SEDIMENT AND DEBRIS FROM ALL DRAINAGE SYSTEMS.
8. THE CONTRACTOR SHALL REMOVE EXISTING PAVEMENT AND CONCRETE AT 0 AND 20-22 PROSPECT STREET WHEN NEEDED TO SUPPORT EXCAVATION.
9. THE CONTRACTOR SHALL INSTALL A DECONTAMINATION AREA THAT WILL ACCOMMODATE HEAVY VEHICLES. ALL DECONTAMINATION FLUIDS SHALL BE COLLECTED BY THE CONTRACTOR AND DISPOSED AS TSCA REGULATED WASTE.
10. CONTRACTOR SHALL REMOVE SECTIONS OF EXISTING FENCE WHICH WILL IMPEDE UPON PROPOSED EXCAVATION ACTIVITIES AND REINSTALL TEMPORARY 6-FOOT CHAIN-LINK FENCE ALONG THE PROPERTY BOUNDARY.
11. MONITORING WELLS IDENTIFIED FOR REMOVAL SHALL BE MANAGED AS TSCA-RELATED WASTE, UNLESS PROVEN OTHERWISE THROUGH ANALYTICAL SAMPLING.
12. EXISTING MONITORING WELLS IDENTIFIED FOR DECOMMISSIONING SHALL BE DECOMMISSIONED IN ACCORDANCE WITH MASSDEP WSC-310-91 STANDARD REFERENCE FOR MONITORING WELLS AND 1999 SDDW SUPPLEMENT. WELLS TO BE DECOMMISSIONED BY REMOVAL.
13. THE CONTRACTOR SHALL REMOVE EXISTING TREES, STUMPS, MULCH, AND VEGETATION FROM THE SITE.
14. ALL SOILS SHALL BE DISLODGED FROM STUMPS, FENCE POSTS, CURBING, AND OTHER DEBRIS DURING CLEARING AND FENCE POST REMOVAL. SOIL REMOVED FROM ITEMS ADJACENT TO THE 0 PROSPECT STREET AND 264-266 SOMERVILLE AVENUE PROPERTY SHALL BE MANAGED AS MCP-REGULATED. ITEMS AND ATTACHED SOIL REMOVED FROM OTHER AREAS SHALL BE MANAGED AS TSCA PCB REMEDIATION WASTE IN ACCORDANCE WITH THE SPECIFICATIONS. ALTERNATIVELY, THESE ITEMS MAY BE MANAGED ENTIRELY AS PCB REMEDIATION WASTE WITHOUT DISLODGING SOILS. TESTING SHALL BE PERFORMED TO SATISFY DISPOSAL FACILITY ACCEPTANCE CRITERIA.
15. TRAFFIC FLOW PATTERN TO BE APPROVED BY CITY OF SOMERVILLE POLICE DEPARTMENT, AND INCORPORATED INTO THE CONTRACTOR'S HAUL ROUTES AND STAGING AREAS PLAN.
16. IF WASTE SOILS OR OTHER PCB-CONTAMINATED DEBRIS IS STORED ON PAVED SURFACES, THOSE SURFACES SHALL BE SAMPLED TO CONFIRM THEY HAVE NOT BEEN CONTAMINATED PRIOR TO PROJECT COMPLETION. IF CONTAMINATED THEY SHALL BE REMOVED AND HANDLED ACCORDINGLY.
17. EXISTING PAVEMENT AT 0 PROSPECT STREET SHALL REMAIN TO SUPPORT REMEDIATION UNTIL SUCH TIME THAT PAVEMENT NEEDS TO BE REMOVED TO ALLOW SOIL EXCAVATION ON PARCEL.
18. CURBING AROUND EXISTING PARKING LOT ON 0 PROSPECT STREET SHALL BE REMOVED, PRESSURE WASHED TO REMOVE LOOSE SOIL, AND REUSED AROUND NEW FINISHED PARKING LOT.
19. PROPERTY BOUNDARY INFORMATION REFERENCES CITY OF SOMERVILLE TAX MAP.
20. SURVEY DATUM IS MASSACHUSETTS GRID NORTH AMERICAN DATUM 1983.

APPROXIMATE GRAPHIC SCALE

0' 10' 20' 40'

FORMER KILEY BARREL SITE
SOMERVILLE, MA

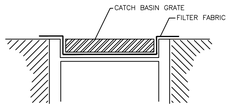
SITE PREPARATION PLAN

TRC
Wannalancit Mills
650 Suffolk Street
Lowell, MA 01854
(978) 970-5600

FIGURE 5

DRAWN BY: SM
CHECKED BY: DGT
DATE: SEPT 2012

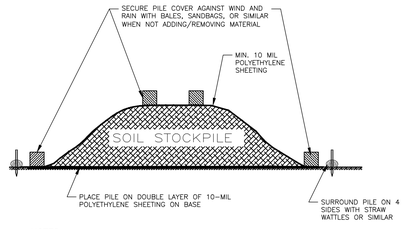
FILE: \\tdpa-lowell\Environmental\Projects\Projects\196378 - City of Somerville - Kiley Barrel Cleanup\05 Reporting-Presentations-Meetin\Site Prep Plan.dwg



NOTES:

1. THE FILTER FABRIC SHALL BE PLACED JUST BENEATH THE CATCH BASIN GRATE. THE CATCH BASIN GRATE SHALL BE USED TO SECURE THE FILTER FABRIC IN PLACE.
2. EROSION AND SEDIMENT CONTROLS SHALL BE INSPECTED WEEKLY AND AFTER STORM EVENTS. ACCUMULATED SEDIMENT SHALL BE REMOVED DURING THESE INSPECTIONS. DAMAGES SHALL BE REPAIRED OR REPLACED PROMPTLY.
3. APPLY TO ALL CATCH BASINS SITUATED WHERE RECEIPT OF STORMWATER RUNOFF FROM THE SITE IS POSSIBLE.

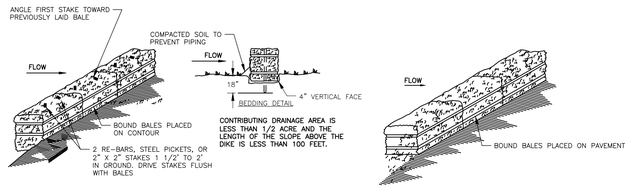
D-1 FILTER FABRIC DETAIL
TRC NOT TO SCALE DATE: 9/7/2012



NOTES:

1. STOCKPILE SHOULD BE PLACED IN HIGH-GROUND AREAS WHERE THE POTENTIAL TO RECEIVE STORMWATER RUN-ON FROM SURROUNDING AREAS IS MINIMIZED.
2. STOCKPILES SHALL BE PLACED ON DOUBLE-LINED POLYETHYLENE SHEETING, AND BE COMPLETELY COVERED WITH ONE LAYER OF POLYETHYLENE SHEETING TO PREVENT STORMWATER INFILTRATION. EACH LAYER OF SHEETING SHALL HAVE A MINIMUM THICKNESS OF 10 MIL.
3. IF POLYETHYLENE SHEETING BECOMES DESTROYED OR DAMAGED DURING COMPLETION OF THE WORK, THE CONTRACTOR SHALL BE RESPONSIBLE FOR FURTHER SAMPLING OR REMEDIATION THAT MAY BE REQUIRED. NOTE THAT SAMPLING OF MATERIAL BENEATH THE STOCKPILE CONTAINMENT SYSTEM MAY BE REQUIRED AT THE DISCRETION OF THE EPA REGIONAL ADMINISTRATOR.

D-2 STOCKPILE CONTAINMENT SYSTEM
TRC NOT TO SCALE DATE: 9/7/2012



GROUND SURFACE INSTALLATION

NOTES:

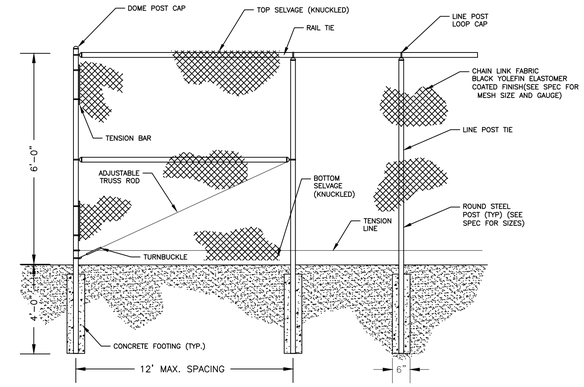
1. CONSTRUCT ALL EROSION AND SEDIMENT CONTROL STRUCTURES AS SPECIFIED, AND AS SHOWN ON THE SITE PREPARATION PLAN.
2. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IN PLACE PRIOR TO INITIATION OF SITE CLEARING OPERATIONS.
3. PERFORM GRADING IN ACCORDANCE WITH DESIGN PLAN.
4. STRAW BALES SHALL BE INSPECTED DAILY AFTER STORM EVENTS AND MORE FREQUENTLY WHEN WORK IS OCCURRING IN THE DIRECT VICINITY.

PAVED SURFACE INSTALLATION

NOTES:

1. STRAW BALES PLACED WITHIN PAVEMENT AREAS SHALL ONLY BE PLACED ON TOP OF THE PAVEMENT AND TIED TOGETHER TO PREVENT MOVEMENT. STRAW BALES PLACED ON PAVEMENT AREAS SHALL NOT BE ANCHORED IN PLACE.
2. STRAW BALES PLACED ON PAVEMENT SHALL BE INSPECTED DAILY, AFTER STORM EVENTS, AND MORE FREQUENTLY WHEN WORK IS OCCURRING IN THE DIRECT VICINITY.

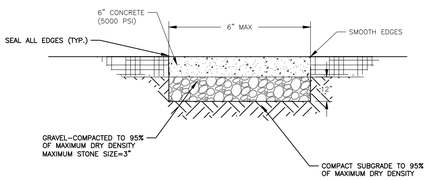
D-3 STRAW BALE DIKE
TRC NOT TO SCALE DATE: 9/7/2012



NOTES:

1. CHAIN LINK FENCE SHOWN IS TYPICAL. DESIGN IS TO BE SELECTED BY THE CITY OF SOMERVILLE.

D-4 TYPICAL CHAIN LINK FENCE
TRC NOT TO SCALE DATE: 9/7/2012

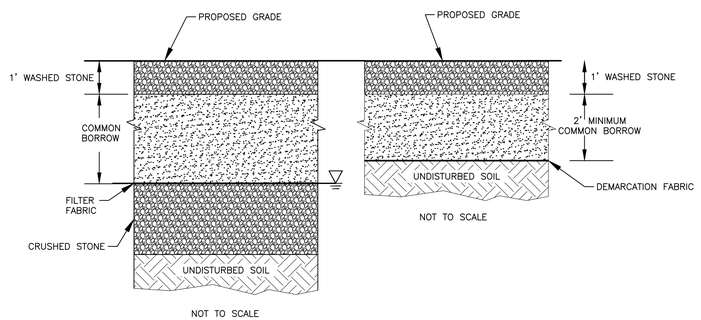


NOTES:

1. TEMPORARY INJECTION POINTS FOR REMEDIAL ADDITIVE TO BE PATCHED WITH CONCRETE IMMEDIATELY FOLLOWING THE COMPLETION OF THE REMEDIAL ADDITIVE.

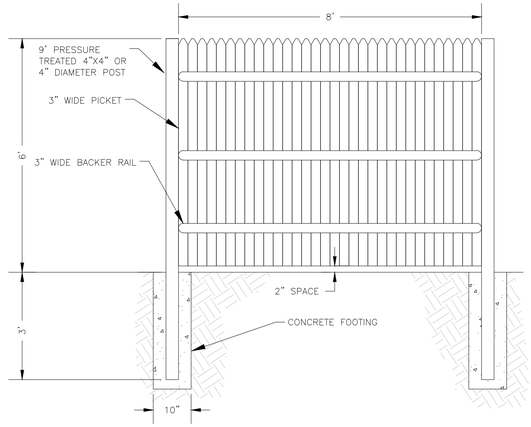
D-5 PATCH DETAIL
TRC NOT TO SCALE DATE: 9/7/2012

TYPICAL EXCAVATION DETAIL



NOT TO SCALE

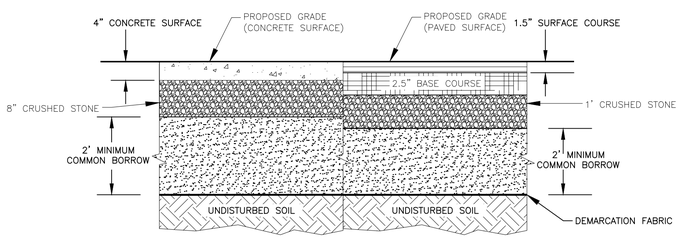
D-6 EXCAVATION DETAIL
TRC NOT TO SCALE DATE: 9/7/2012



NOTES:

1. FENCE TO BE SPRUCE WOOD WITH PRESSURE TREATED POSTS.

D-7 WOODEN STOCKADE FENCE DETAIL
TRC NOT TO SCALE DATE: 9/7/2012



NOTES:

1. PAVEMENT SHALL CONFORM TO THE MOST RECENT REQUIREMENTS IN THE MASSACHUSETTS HIGHWAY STANDARDS AND SPECIFICATIONS.

D-8 TYPICAL CONCRETE / PAVEMENT SECTION
TRC NOT TO SCALE DATE: 9/7/2012

FORMER KILEY BARREL SITE
SOMERVILLE, MA

EROSION AND SEDIMENTATION CONTROL MEASURES

TRC
Wannalancit Mills
650 Suffolk Street
Lowell, MA 01854
(978) 970-5600

FIGURE 6

DRAWN BY: SM
CHECKED BY: DGT
DATE: SEPT 2012

FILE: \\tdpa-lowell\Environmental\Projects\Projects\196378 - City of Somerville - Kiley Barrel Cleanup\05 Reporting-Presentations-Meetin\Erosion and Sed Control Measures.dwg